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Computer Weekly

Thursday, November 24, 1983

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Zygal quits as DEC distributor

by John Kavanagh
ONE of Digital Equipment's four UK authorised terminal distributors has pulled out of the company's "official" scheme. Zygal Dynamics says the DEC products are hard to sell outside the DEC computer market - and it has taken on cheaper terminals from competitors.
Zygal's move comes less than a year after Avacus Electronics left the authorised distributor scheme and only a fortnight after Argat ended its authorised computer distributor contract with DEC.
But the three remaining terminal firms say DEC business is booming and that DEC's new terminals are set to take over the market.
"We just weren't selling very many," said Zygal chairman Con Driscoll. "We had no experience of selling terminals to DEC users and were making more money selling in our traditional printer markets. DEC wants the distributors to sell outside its computer user base but over 90% of DEC terminals are used by its own computer customers. The VT100 terminal is very difficult to sell outside the DEC base, especially against products from firms like Televideo and C.Itoh."
Zygal has taken on the Televideo products.
Driscoll said the parting was amicable and DEC had taken back all remaining stock, though it was not obliged to.
But other DEC distributors re-



DRISCOLL... "Parting was amicable."

ported big business. "DEC terminals have not been wholly suited to the general market because they have options specifically aimed at DEC computer users, which means they are expensive," said Jim White, terminals division manager at Rapid Recall.
"But the new BT200 family will knock Televideo and C.Itoh right out. It's a more general product - and users like the support a big company like DEC can offer."
Pat Frizzon, managing director at Bytech, agreed. Bytech, like Zygal, was new to the DEC market when appointed early in 1982.
"Sales have got better and bet-

Government stall irritates leaders

by John Kavanagh
COMPUTING industry leaders have lashed the government for stalling over giving "minute" amounts to schemes which would boost the UK information technology business.
The Department of Trade and Industry has asked for further discussion over a £16,800 grant for a project aimed at bringing UK university software to market through services firms.
And there is still no decision on further funding for the ExportIT scheme, which has been run on a shoestring for the last year while the government ponders over a grant of about £150,000. In its first year, when it had £250,000 of backing, ExportIT brought UK firms export contracts representing business totalling £10 million.
"A lot of government people have been sitting on the fence," said Donald Moore, who has been acting as director of ExportIT on a voluntary basis for the last two years. "A full-time chairman was appointed in May and he's been hanging about since then waiting for a decision."
"We were granted £250,000 at the end of 1981 - and we've kept going on that through 1982 and 1983, plus income from overseas missions and exhibitions.
"The amounts we're talking about are minute. We could be-



FAIRBAIRN... "Opposition will be missed."

come self-financing on a lot less than £200,000."
Fairbairn agreed. "The government has been reviewing ExportIT funding since December and it's not prepared to make a decision," he said.
It was Fairbairn who last month wrote to the Department of Trade and Industry with final proposals for a £35,000 survey of university software. Over half the funding has already been promised by the NCC and the British Technology Group.
But this week the Department wrote back seeking further discussion of certain points which, says the NCC, had already been clarified. Fairbairn had discussed the plan with Alistair McDonald, head of the department's information technology division, before sending the proposals. Fairbairn said McDonald was "happy" with the idea.
When appealing for the £16,800 grant Fairbairn wrote: "I believe there is a very important task to be done and an opportunity will be missed if an activity is not now mounted to develop links between universities and industry."
This week the man behind the initiative at the NCC, Eric Johnson, said the Department's reply was "a let-down."
"The Department says the survey should also cover the mechanism for distributing the software," Johnson said. "But we'd made it clear we would look at this and consider possibilities such as setting up a software company."
Also involved in the project is the University Directors of Industry Liaison group. A source close

Asian scientist accuses lab of racism

by Donald Kennett
THE National Engineering Laboratory has been accused of racial discrimination by one of its senior computer services staff.
Kuldip Bhassin joined the laboratory's computer department in 1967 and by 1976 he was a principal scientific officer (PSO) responsible for the 11-man systems and applications section.
His complaint is that he was then transferred in May 1982 to a position under someone of the same rank in the plastics engineering department, where he was unable to use his knowledge and experience.
He believes he was discriminated against because he is Asian. He has applied for a hearing by an industrial tribunal.
The crunch came in June, when he was told there was no longer a job for him back in the computer services department - and he feels he can trace his maltreatment back to 1980.
NEL director Dr Donald Bell said: "We have treated him like any other PSO, with no reference to his ethnic background, and I'm quite puzzled why he's taken this action."
"He's in his early forties and was made a PSO early on in his career, which means he has the potential to rise quite high. He's a bright guy."
"We said 'You've got this background in computing, we'd like you to apply it to a new area in materials design'.
"We gave him an ill-defined problem, that's acknowledged. But then PSOs often are. He made such a song and dance about it that we took him away from it."
"Now we want to see what kind of training is needed to let him become a full computer-aided engineering sort of person rather than just computer services. Computer services is the sort of job you give someone for a while before moving him on to something more difficult."
There was no question of Bhassin having ruined his career prospects, Bell said.
Bhassin is consulting his union, the Institute of Professional Civil Servants, in preparation for the hearing, which is likely to be early next year.
IPCS assistant general secretary Tony Cooper declined to give his view of the case. "All I can say," he said, "is that, as in any case of this kind, we see what we can do - the best we can - for somebody."

Return-to-work talks start in BT dispute

by Nuala Moran
TALKS began last week between British Telecom and the engineers' union, the POBU, aimed at getting about 1,000 engineers involved in industrial action against the government's plans to privatise BT back to work.
The POBU also decided not to

IBM amends NAS and NatSemi writes

by Keith Holder
IBM has reaffirmed its intention to sue National Semiconductor and National Advanced Systems for damages, which it estimates could cost the defendants between \$750 million and \$2.5 billion, over the alleged theft of IBM technology secrets.
This was part of the statement

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BCS to back private Bill on copyright

by George Black
A NEW move to get software covered by copyright legislation is to be launched by the British Computer Society next week. The idea is to bring in a Private Member's Bill that would remove the doubt on the subject through a simple amendment to the 1956 Copyright Act.
Industry leaders see no prospect of the government fulfilling within the next three years its pledge of a general reform of copyright law, and they say that the confusion surrounding the ownership of programs cannot be allowed to go on that long. The government's Green Paper on copyright was published nearly 2½ years ago.
Chairman of the Computing Services Association legal group Ronald Robertson said the proposal of a private Bill would have his association's support.
Common Market plans to promote an international law have stumbled on member States' objections, leaving individual nations to put their own houses in order.
The CSA is keen to promote any initiative which strengthens authors' rights, but is arguing against a central register of copyrights on the ground that it would help to alert competitors to programming developments.
The significance of the British moves has been highlighted by a case in the US in which a top vendor has been found guilty of "willful and malicious" copyright infringement of software.
McCormack and Dodge was ordered by a court at Bellingham, Washington State, to pay damages of \$2.3 million, plus legal costs of over \$300,000, to ABC Management Systems Group for illegally selling ABC's financial spreadsheet and report writer overseas.
Now ABC is considering whether it also has a case against RTZ Computing Services, which sells the McCormack accounting suite incorporating the module in this country.
Vernon Ruskin, president of ABC, which licensed McCormack to sell the Fast subsystem embedded in its GL+ suite in the US only, said RTZ had been warned of the implications of the dispute, but had gone on distributing the code.
But McCormack's European manager, Charles Hogan, said RTZ was wholly protected and the obligation was all their own.
After the case Ruskin commented: "The issue was whether you can take a program and change it and claim that the original author has lost his rights. The court has said no and this is a victory for every software developer."
An injunction will stop McCormack selling GL+ outside the US from December 31. Nearly a quarter of its 1,000 sites are in Europe and it is still selling 250 copies a year.



ROBERTSON... Support.

IBM sues NatSemi for \$7bn

by Keith Holder
IBM has filed a \$7.5 billion lawsuit against National Semiconductor. The suit is the latest shot in a continuing battle between the companies over the alleged theft of IBM trade secrets.
The suit is based around the value of the alleged stolen information, which IBM says was obtained through espionage by National Semiconductor and its computer subsidiary National Advanced Systems (NAS) in partnership with Hitachi and NCL Data.
An IBM attorney has estimated the value of the information at between \$750 million and \$2.5 billion, equivalent to about one year's worth of research and development.
IBM filed the suit because it had been unable to reach a settlement with National Semiconductor, a spokesman in New York said.
A spokesman for NAS said earlier that efforts were being made to reach an out-of-court settlement similar to that between IBM and Hitachi, earlier this year.
He added that the US legal system was not quick on cases like this and there was "still a lot of time for negotiation."
A settlement similar to the Hitachi one could cost NAS dearly. Recent reports in the Japanese Press claim that Hitachi has paid IBM about \$300 million in damages and legal costs. It also has to submit new products to IBM inspection for the next five years.
IBM's case against NAS suffered a setback last week when the federal judge handling the case dismissed portions of IBM's claim.
He said that, with respect to the parts alleging transportation and receipt of stolen items after the operation began, IBM could not prove that the companies involved knew the items were stolen.



TEBBIT... "Campaigners are wild, cruel and callous."

Tebbit returns fire on PO engineers

by George Black
TRADE and Industry Secretary Norman Tebbit last week launched a fierce counter-attack on Post Office engineers to stem the tide of opinion against privatisation reflected in the opinion polls.
He told a private meeting of Tories at the House of Commons that the Post Office Engineering Union was "naturally allied to monopoly" and that the cause it purported to serve - that of the customer - was "subversive to other causes," which he called ideological.
Tebbit accused union campaigners of being "wild, cruel and callous", with suggestions that the blind and deaf would suffer under a private telephone system. The Bill would contain safeguards for kiosks, emergency services and rural areas, he said.
However, a confidential document leaked to The Guardian from an Industry Department committee seems to undermine some of Tebbit's arguments. By the year 2000, only half of the population - the urban half - would have the benefits of two-way telecommunications based on cable TV, says the paper.
But its author, alleged to be an under-secretary, advising the Secretary of State on technology strategy, doubts if it would be worth forgoing the benefits of

Sperry PC for UK early in 1984

SPERRY unveiled its Personal Computer - an IBM PC clone built by Mitsubishi - in the US this week. It should reach the UK early in 1984.
The box is a standalone desktop unit based on an Intel 8088 processor, runs MS/DOS, and comes with a standard 128K RAM. It will be available in five models ranging from \$2,600 to \$5,700, with basic, Multiplan, and Wordstar bundled in.

Bid for CAL

CPU COMPUTERS is set to buy cash-strapped Computer Ancillaries, CAL. It has bid for 70% of CAL that it does not already own, in a share swap worth £285,000. As well as distributing Durango machines CAL sells an IBM Personal Computer look-alike, designed and built by CPU's LSI Computer division.

POEU dispute

ABOUT 1,100 Post Office Engineering Union staff are being sent back to work by the union next Monday. But another 1,450 in British Telecom International, covering overseas telex and satellite services, will stay out. The union's general secretary Brian Stanley said the fight against privatisation was going on.

Laser launch

SIEMENS, the German computer and peripherals manufacturer, is to license, build and market Storage Technology's first laser printer, the 6100. It will be launched next March and is compatible with all IBM and plug-compatible mainframes. UK price will about £125,000.

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Micro News.....	10
Software File.....	12
Company News.....	14/15
Profile.....	16
Downline by Chad.....	16
Platform.....	16/17
Leaders.....	17
Letters to the Editor.....	17
Workplace.....	18
Puzzler.....	18
People in the News.....	19
Diary dates.....	19
Marketplace.....	26/27

Takeover by Hogan in push for City systems

BOOMING US banking systems house Hogan has picked up an international banking specialist for an undisclosed seven-figure sum to push its move into the London financial market.

Hogan, which set up in London last April to sell its retail banking systems, has completed the purchase of the small New York international banking systems specialist Henco, a private company owned by founder Bruno Henry.

Richard Warren, Hogan director of European operations, said: "One of our mutual users, a UK clearing bank, said that there was an interesting match between the two companies. We began negotiations in August and signed in mid-October."

Hogan had a turnover of \$556,000 in 1980, and has moved to \$17m for fiscal 1983.

Both software houses are committed to IBM hardware. Henry said: "Banking is evolving so fast that we don't know where it's going to be in five years. The banks don't want to be held up by hardware problems, so we have developed modular systems in the mainstream of IBM development."



HENRY... "We don't know where banking is going."

Govt speeds up the Telecomms Bill

by Philip Hunter

THE government now hopes to complete the Third Reading of the Telecommunications Bill and send it back to the Lords by Christmas. The standing committee examining the Bill has finished its work, and just two more days have been allocated for debating the report and for the Third Reading.

This tight timetable was labelled as "ridiculous and outrageous" by Peter Shore for the Opposition. But John Biffen, Leader of the House, said the shortened time was reasonable, because the present Bill and its predecessor had already been discussed for 240 hours in committee.

Kenneth Baker, Information Technology Minister, added that the Opposition had consistently wasted time on the Bill, and said the government had a clear man-

date for the measure. The aim was to have a royal assent for the Bill by late spring or early summer.

The director general of OfTel, who would be responsible for co-ordinating UK telecom policy, would be appointed some weeks after the royal assent, and shares in BT would be offered for sale in the autumn of next year.

In other developments in Parliament last week:

■ Baker told MPs that there are now 11 major UK makers of silicon integrated circuits. In 1982 the UK market was worth £302 million, and UK firms made £208 million worth of integrated circuits.

■ Baker said that about 6,500 primary schools and 16,000 secondary schools had received microcomputers in the schools programme.

■ Progress had been made to-



ward standardising software, hardware, communications equipment and flow of data between police computers, Douglas Hurd, Minister of State at the Home Office, revealed in a Commons reply. The Home Office is working on a model for criminal information systems, which it hopes to recommend to police forces.

Lanier enters micro market

by John Riley

US WORD processor manufacturer Lanier Business Products, recently taken over by the giant Harris Corp, last week formally announced its entry into the microcomputer market.

Lanier had a strong profile in the US, with a substantial base of dictation machines and word processors. Harris hopes to use its aggressive marketing organisation to expand into the commercial sector from the technical sector.

According to David Reavley,

System X wins first £20m order at Hull

by Donald Kennett

SYSTEM X has shaped up just in time to win its first major competitive order. Worth about £20 million over the next seven to 10 years, the order is the result of Hull City Council's eagerly-awaited evaluation of six bids from international suppliers to modernise its network of 14 telephone exchanges.

Hull telephone manager Andrew Matthews said System X had scarcely been in the running until a few weeks ago, because it looked as though the production volumes were going to be too small to bring prices down or to sustain a continuing R&D programme.

The commitment Plessey had shown to going for overseas sales when it bought Stromberg Carlson in the US had been a decisive factor, he said, and the accelerated purchasing programme announced by British Telecom at the end of last month had clinched it.

Hull operates the UK's only independent local telephone network. It was the only local administration to stay independent when they were merged with the Post Office to form a national network early this century.

System X was proposed in a joint bid by GEC and Plessey. Bids with part UK involvement came from Thorn-Ericsson and Standard Telephones & Cables (STC). STC has been Hull's main supplier for most of this century and was proposing to supply the System X team last year.

This time it proposed the System X2 digital system designed in the US by its major shareholder ITT, in a joint bid with ITT's Belgian subsidiary Bell Telephone

Manufacturing which has taken charge of System X2 development for ITT.

Thorn-Ericsson won the contract two years ago to supply the digital transmission systems that will link the System X exchanges in Hull. For the current switching system contract it proposes the successful AS digital system developed in Sweden by its partner LM Ericsson.

Other bids came from France's CIT-Alcatel, which recently beat System X to two deals in India; from Canada's Northern Telecom, which recently announced plans to start manufacturing digital telecommunications systems in the UK; and from AT&T and Philips, a joint venture formed earlier this year to make US-designed digital systems in Holland.

A condition of the 25% loan from the European Investment Bank that is helping to finance Hull's network modernisation is that the main contracts be subject to international tender, at least among the members of the EEC.

The first of Hull's System X exchanges is due to be in service by the end of next year. It is one of an initial batch of three, costing more than £5 million; that will serve 37,000 of Hull's 150,000 subscribers.

Matthews said that comparing the price per line of between £135 and £160 that appeared to be payable under this contract with the £250 to £400 believed to have been paid by British Telecom for System X in the last few years was misleading since this contract excluded transmission plant, digital to analogue conversion, power supplies and buildings.

France plans European super centre by 1984

by Jack Gee

A EUROPEAN supercomputer centre in France for scientific calculations has been proposed by the French government, which proposes to put up 40% of the budget.

Premier Pierre Mauroy has promised full support by France for the centre to be built at Toulouse for industry and research workers from all over Europe.

The centre, whose original impetus comes from scientists in South-west France, will be equipped with a supercomputer with easy long distance access, training facilities for scientific processing users, and well-stocked data banks.

Although the target date to get the centre operational by the end of 1984 - might seem optimistic, France will submit plans to the European Council Ministers early next year. France succeeds Greece in January in the chair of the European Commission.

The French government is prepared to put up 40% of the cost.

Three set store by optical disc devices

by Keith Holder

THREE contenders in the optical disc stakes have declared their hands this week.

Storage Technology, Thomson CSF in partnership with Xerox, and Toshiba have all announced write-once optical storage devices, though only the Toshiba machine is available in the UK now. The other two will not be available in Europe until the third quarter of next year.

The Toshiba DF 2100-R, marketed in the UK by Lion Office Machines, is a library filing system which, according to its manufacturers, can store up to 10,000 A4 documents on a 12in disc.

Thomson's gigadiscs are aimed at the mini/micro market, with one billion bytes stored in a 12in disc.

Meanwhile Storage Technology has set its sights on the lucrative IBM market with its 7600 subsystem and boasts compatibility with IBM's 370, 4300 and 308X mainframes and plug compatible mainframes running MVS. Storage capacity is four gigabytes.



BRITAIN... "We propose holding discussions."

Cable licences go to eleven groups

by Donald Kennett

ELEVEN consortia are to get licences for pilot cable projects, provided detailed negotiations with the government are concluded satisfactorily.

The 11 were selected from 37 applications received in August in response to the government's plan to speed the introduction of advanced wideband cable services to homes and businesses.

Eight of the 11 are to use the "switched star" layout favoured by the government and claimed to be better suited to advanced applications involving high-speed, two-way communication of data and video images. The three operators of the alternative "tree and branch" type of system do not plan to provide interactive services.

The detailed negotiations with the government are believed to be promising in their proposals. In the US competition for cable

network franchises got so hot that many companies promised facilities they were in no position to provide by the time systems were installed.

Home Secretary Leon Brittan, who announced the licences, said in Parliament: "We now propose holding discussions with 11 applicants to explore further some specific points in their applications. Provided these discussions are concluded to our satisfaction, we shall issue pilot project licences to them."

A spokesman for the Department of Trade and Industry said the negotiations were to start this week and could last into the spring.

Further applications for cable licences would be invited in the autumn of next year, by which time legislation to set up the Cable Authority should have taken effect. A Bill is to be introduced in the House of Lords this month.

The existing cable television operators have a poor showing in the initial awards. Thorn EMI is involved in three winning projects, two of which also involve British Telecom. Rediffusion is involved in only one, although it was party to four proposals. Visionaire was party to four proposals, but none was successful.

Racal-Ok, the company set up by Racal with a US partner, is in line for a licence, as is GEC which also set up a joint venture, GEC-Jerrol, to get into the industry. GEC-Jerrol is also involved in an equipment supplier to at least five of the operators.

Plessey is involved with two successful applications, both of which also involve BT. Standard Telephones & Cables is involved in one, also in partnership with BT.

Five of the 11 systems are to be installed in the London area and the others scattered from Aberdeen and Belfast to Swindon.

Plessey takes the Convergent line

by Dave Madden

CONVERGENT Technologies has signed a \$30 million contract with Plessey Office Systems to supply it with its latest workstation offering.

Plessey will attach the kit called the NGEN to its new IDX private digital exchange, part of its IBIS Integrated Business Information System.

Martin Lippmann, Convergent UK sales manager, says the company will close several "substantial" orders from other UK telecommunications manufacturers within the next three months. GEC's A. B. Dick signed a \$60 million deal with Convergent in the US in October, and Convergent hopes GEC will do a separate deal in the UK.

GEC showed an NGEN at the Telecommunication Managers Association exhibition in Brighton in September.

Plessey's name goes on to a remarkable list of OEM agreements

that Convergent has made this year. Burroughs, NCR, Prime, Gould SEL, Datapoint, TRW, C3, and Raytheon have all signed major orders for Convergent products. Lippmann pointed out that the company has another 100 OEM customers worldwide, all contracted to take between \$3 million and \$10 million worth of kit over the next two years. That adds up to orders approaching \$1 billion - for a company which had turnover of just \$13.1 million in 1981.

Convergent's NGEN uses Intel's 80186 processor. Lippmann said: "We are Intel's second largest chip customer after IBM, and we are helping them to get the processor right - we have had no greater difficulty in getting hold of the processor than anyone else. Plessey already has two NGENs."

Convergent expects to be in full production of its new generation of products, including the NGEN, by the second quarter of 1984.

MAUROY... Full support.

budget right away - in the hope that its European partners will provide the other 60% - to avoid any delay in getting the scheme of the ground.

The French choice of Toulouse as the site for the scientific calculating project is dictated in part by its closeness to Spain and Portugal which are waiting to join the Common Market.

Observers in the French data processing industry say the Toulouse project could face the shortage of top-rate specialists which has hampered a venture by Cray Research at Ecole Polytechnique, the elite establishment which turns out France's top managers and technical brains.

Another handicap is the lack of hood this France's IBM-Mathematic programme to develop a supercomputer will not bear fruit until 1986.

So the Toulouse centre will require the acquisition of another Cray machine, an arrangement which would probably be completed with a government order that in front end should be supplied by French firm Bull.

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BL Systems changes name to Istel in expansion plan

by Keith Holder

THE successful computer arm of State-owned car manufacturer BL is going all out to establish a separate identity for the world market. BL Systems, as well as changing its name to Istel, has put forward ambitious plans to expand its range of software and services.

Development is already underway on software for micros, expert systems and viewdata networking. The last of these involves using video discs to link micros to the viewdata network, and has won the company a major manufacturing project in the Esprit programme.

The name change takes effect from the end of the year, and is designed, said managing director John Leighfield, "to give us a definite identity as a systems house, allowing greater opportunities to extend our customer base outside the BL companies."

He denied suggestions that the move was an attempt to distance the company from BL before the government goes ahead with plans to sell the car manufacturer to the private sector.

"We are proud to be a part of BL, and it will continue to be our most precious customer."

The company will remain a wholly-owned subsidiary, though it is planned to increase outside contracts from the present 10% to 30% of turnover over the next five years.

Leighfield dismissed rumours that profitable products, such as the company's microwave network, would be sold off.

Turnover of BL Systems this year is expected to exceed £30 million.

Contracts with Xerox, Ford and Exxon have been won this year by a newly-formed US division, BLSL.

"BL has always encouraged us to seek a wider market for our products," said Leighfield. "We are now recognised as one of the largest systems houses in the world."

The company was formed in 1979 when a decision was taken by BL to group together individual pockets of expertise which were scattered throughout the various divisions.

BL Systems has now grown into three divisions with a staff of 1,050. "It's quite a spectacular rate of growth for such a young company," said Leighfield.

He said the company had gained a reputation for innovation and achievement in the fields of flexible manufacturing systems, computer-aided design and networking.

Its reputation started with the success of a computer-controlled production system called See-Why, which lets an operator try out different configurations for a production line to see where logjams might occur.

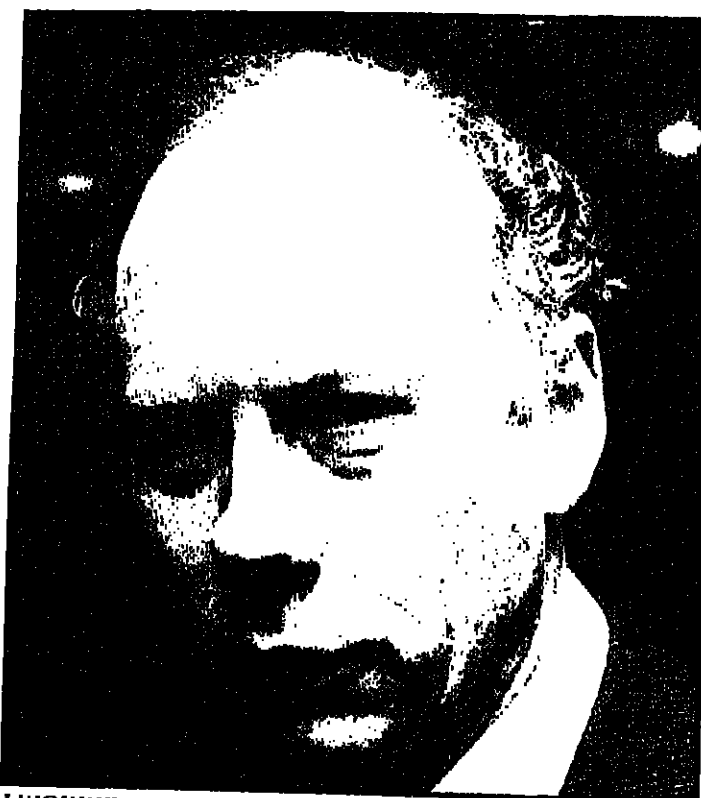
The system was used on the Metro, and won the British Computer Society's applications award.

"Once word of this got out, we started to get enquiries from outside companies which wanted to see if we could solve their problems," said Leighfield.

These were not from other car manufacturers: less than 1% of BL Systems' outside business is in the automotive industry, he said.

The company was keen to involve itself in collaboration projects and did not rule out the possibility of working with the Alvey committee on communications systems.

Innovation is the name of the game. We might have learnt a lot already, but we still have some way to go," said Leighfield.



LEIGHFIELD... "Innovation is the name of the game."

Low-price LAN set for £1 million sales

by Nuala Moran

SALES worth over £1 million are expected next year for V-Net, a low-price local area network built by micro and terminal distributor Mideltron.

V-Net, set for volume deliveries in January, is manufactured by Mideltron's special products division and has a starting price of £550.

Steve Hewitt, manager of the special products division, said: "V-Net was designed to a price. But it is an incredibly powerful system. Between four and 32 systems or

peripherals may be connected to the network without it slowing down at all."

V-Net can be installed by the user and will work over a distance of 400-500 yards. The basic configuration consists of a base unit with power supply and bus controller, costing £150, to which are added RS232 interface units of four ports, each of which costs £400.

Hewitt said: "We are looking to the small office market. We expect sales of 2,000 to 3,000 units in the first year."



CURRY... Negotiations in India.

Acorn wins huge order for Indian schools kit

by Philip Hunter

INDIA has taken its first step toward putting microcomputers in its schools by placing a big order with Acorn Computers.

The size of the order has not been disclosed, but up to 200,000 machines worth about £100 million could be involved if India adopts the BBC microcomputer as its standard education machine and installs it in all its schools.

The present order is for machines to be used in Indian colleges, where education software is to be produced for a schools programme.

Acorn director Chris Curry was recently in India to negotiate the deal and arrange for India to assemble the machine itself to meet future demand.

India, like most Third World countries, insists on starting local assembly as soon as possible as a condition of the initial order.

The announcement of the Acorn order came the day after the Queen, in New Delhi, presented President Zail Singh with 30 BBC Acorn computers linked in five local area networks, for use in Indian universities and colleges to evaluate the future use of computers in education and develop software.

Acorn is the first UK micro maker to make firm progress in the Third World.

Sinclair Research announced in the summer that it was holding discussions with China, but no firm decision has yet been made. Sinclair hopes to seize a slice of the Indian market, and has been holding talks for some time with the Indian government.

But Acorn has taken the stage, and hopes to follow with an order from China, where its Econet local area network system based on the BBC micro is being evaluated.

Multi-user micro to be made in UK

by Dave Madden

A LIVERPOOL start-up company hopes to be manufacturing a multi-user micro in the UK next year.

Dataday Computing has picked up sole UK distribution rights to a machine called the Ultraframe from Independent Business Systems (IBS) of Livermore, California. Les Clark, Dataday founder and managing director, says he will be making the Ultraframe in Liverpool in 1984.

The Ultraframe system is basically an \$100 bus with slots for IBS Slavenet processor boards. At the moment Dataday supplies Slavenets with a Z80A processor running at 4MHz, and 64K or 128K of RAM. IBS is due to have an Intel 80186 version, with 256K RAM, at Comdex Vegas this week.

Clark said: "We are assembling the machine at the moment, but next year we'll ship in the boards. We are looking for UK parts and fabrication."

So far Dataday has sold two systems in the UK. A multi-user configuration with 63 Mbytes of hard disc will cost £13,600.

PoS system bids to shake up market

by Donald Kennett

A SYSTEM with £1 million behind it is set to live up to the UK point-of-sale (PoS) market. Last week saw the formal launch of Warrington-based Microsell and its modular PoS system, the Microsell 8000, following a management buy-out backed by the British Technology Group and two other investors.

The system had been developed at a cost of £450,000 by Menzies Communications Systems, which was a subsidiary of the John Menzies retail chain until Menzies factor Comdial last year. To this £500,000 from venture capitalists Armour Trust, Alan Patrikoff Associates and the BTG, as well as from the management team itself.

The new company is poised for "substantial growth", according to managing director Mike Bielinski. "There are only two companies in the country doing the job properly," he said, "ourselves and Thorne-Hill."

The point-of-sale market has consistently failed to take off as

expected. But in Bielinski's view this was because systems were too expensive and too difficult to tailor to retailers' requirements.

One of Microsell's first customers is the Scottish electrical retail chain Clydesdale, which is equipping its 100 stores with Microsell tills. The exercise will cost £500,000 including communications and finance director Bill Spicer expects the system to pay for itself in two-and-a-half years.

"We are now loading a branch a day and expect to be complete by April," Spicer said. "The only reason we delayed this long was through waiting for Microsell to sort out its structure. The only worry was for the future - until they got their backing."

The payback will come mostly from savings on staff. But this was causing no problems, Spicer said. There would also be a major impact on stock distribution and credit handling. "Updating stock records has been a 16 days post-sale event," he said. "Now they will be ready for the following morning."

SALES BRIEF

Rodime wins £5 million disc deal

SCOTTISH Winchester disc drive maker Rodime has clinched a £5 million UK order following its recent export to the US. Synbiotic Computer Systems of Surrey has ordered Winchester drives from all of Rodime's 5 1/4 inch range with formatted capacities up to 42 Mbytes, as well as 3 1/2 inch drives with up to 10 Mbytes.

Synbiotic will use the drives for its Synbiotic range of hard disc systems which are assembled in Croydon and used for leading micros, including the Apple.

Soap takeover

HOSKYNs has won a £300,000 deal with Manchester-based Caosons, maker of Imperial Leather soap, to take over running of the existing ICL installation while the company converts to IBM. The firm had planned to run ICL and IBM in tandem for two years while software was being rewritten, but run out of space.

Training contract

MANPOWER Services Commission has engaged the independent maintenance firm Mills Associates to service the 77 Commodore microcomputers used at its Skill Centres and Rehabilitation Centres for training. Mills is the only maintenance firm approved by Commodore in the UK.

Serving the Navy

COMPUTERVISION, computer-aided design and manufacturing specialist, has renewed its contract with the US Navy, taking the total value to \$100 million. The agreement calls for extra workstations, maintenance and support to be used for production and development of new weapon systems.

BT £2m order

GENERAL DataComm UK has scored a £2 million order from British Telecom for multiplexers, after winning a £1 million order from BT's rival, Mercury Communications, for its private digital network. BT will use the multiplexers for its Kilostram and Megastream digital services.

Water control

LOGICA is to install the first of a new breed of control systems for the water industry in a contract with the Anglian Water Authority worth over £1 million. Logica will fit out the authority's operations centre in Norwich with a DEC PDP-11 system and also supply data capture equipment to 400 outstations, including sewerage works, pumping stations, river sites and tidal flood warning stations along the East Anglian coast.

Software choice

SCIENCE and Engineering Research Council has gone to Management Science America (MSA) for accounting software worth £100,000. "MSA came out ahead of others on functionality and ease of use," said Brian Davies, head of computing at SERC's Daresbury laboratory.

First order

COMPUTER Technology has taken its first order worth £30,000 for the recently launched Momentum 9000 range store Jenner, to replace a bureau service for accounting and payroll. The 9000 range replaces the 8000 range with an extra model at the bottom and top ends.

Apricot supplier

APPLIED Computer Techniques has chosen Panasonic UK to supply the high resolution CRT displays for its Apricot micro. The order, Panasonic's largest in the UK so far, is expected to involve at least 60,000 units.

British Telecom Merlin introduces its 4th Generation modems.

The low-cost flexible answer to trouble-free data transmission. Merlin's range of 4th Generation modems are designed and manufactured in the UK to get the best out of the UK telephone network. Extensive use of the latest in LSI and microprocessor technology means that as well as offering you a wide range of facilities they consume less power and take up less space.

4th Generation modems are strong on compatibility. Whether you need one modem or a hundred, the 4th Generation's modularity gives you the flexibility to meet your exact requirements in the minimum of space and at minimum cost.

Wherever possible they have been designed to meet international standards and as a result it doesn't matter if you are calling Halifax or Hong Kong the maximum in interworking compatibility is achieved.

The 4th Generation range even offers you modems integrated into a modern telephone instrument. The Datelphone gives you the best in datacoms with the minimum of fuss and bother. It is ideal for any office location.

All the 4th Generation modems feature comprehensive test and diagnostic facilities. These save you time and temper. Should anything go wrong with your system, fault identification is dramatically simplified and down-time thereby reduced.

The Merlin range offers you everything you need to meet your total communications requirements. When you deal with British Telecom you have the confidence of knowing that you are with the experts.

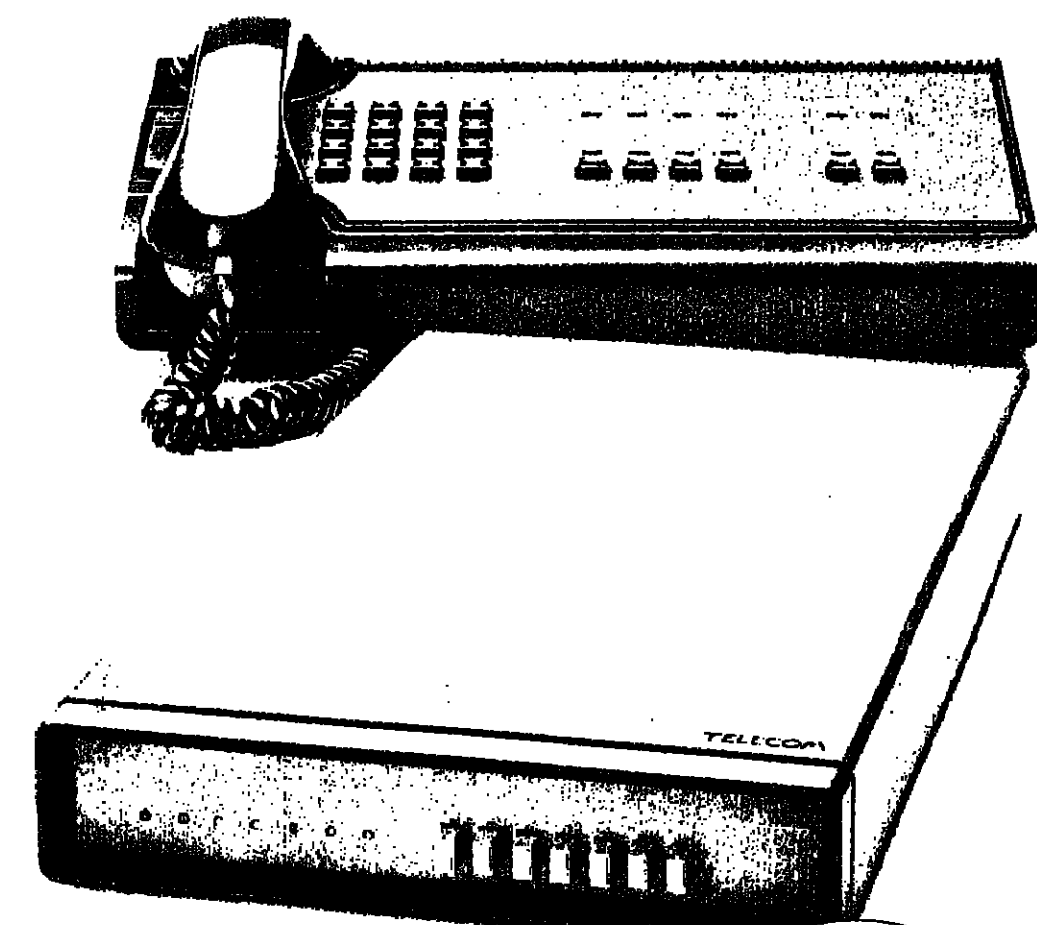
Some of the products in the wide range are:

Datel Modem 4124 A V21/V22B PSTN modem for bureau use where its auto-speed selection saves computer ports, line costs and space.

Datel Modem 4241 A V26bis modem for instation and outstation use on the PSTN and PCs.

Datelphone 4241 A V26bis modem in an attractive modern telephone case which incorporates a 10 number repertory dialler. For outstation use on the PSTN and PCs.

Datel Modem 4480 A V27bis/ter modem for instation and outstation use on point-to-point and multipoint circuits.



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MINOTTO... "We won't be bound."

UK gets new micro retailing group

by Nuala Moran
THE ex-European president of Computerland, the world's largest micro retailer, is setting up a micro franchise retail chain in the UK. James Minotto has set up Interface Network with Brian Allmy, who, as managing director of Sperrings computer shops, had the first UK Computerland franchise. Interface plans to open 80 stores before the end of 1987. The first will open before March 1 1984 at a site within 30 miles of London. Ten shops are planned for the next year - six will be franchised and four run by Interface. Computerland set up its first two UK shops in 1982, and a third in October this year. Programs Unlimited, another US company, opened its first UK shop in Baker Street, London, about three months ago. It has a shop in Croydon and, according to managing director Jeffrey Cooper, "plans to open quite a few more in the next six months".

Business micros at Debenhams

by Paul Fisher
HIGH street mass marketing of business micros has taken another step forward with the opening of seven Greens Business Systems (GBS) stores within Debenhams shops. A further 35 centres are planned in the next 18 months and, claims GBS managing director Michael Milman, Greens will "soon be the biggest dealer in the country".

Milman says that £750,000 has been invested to date and that a further £400,000 has been set aside for 1984 advertising. He predicts that next year's GBS turnover will be £10 million.

Greens, a wholly owned subsidiary of Debenhams, is already strong in home micro sales. However, the seven business centres have separate selling areas in Debenhams shops at Guildford, Oxford, Harrow, Romford, Southampton, Staines and Harvey Nichols in Knightsbridge. Milman is anxious to stress that GBS is entirely separate from Greens' leisure sales. "There is no crossover between business and home products," he says. "Some of our competitors have made this mistake and it puts businessmen off."

The GBS stores are selling a

BIS gains openings abroad

by John Kavanagh
A £500,000 investment has given US services group BIS new operations in the US, Australia and fast-growing Far East markets and taken it into the microcomputer software business. The group has bought 40% of Johnston Brown and Associates, thought to be Australia's biggest international software firm. BIS has the option to take 76% of the company within three years. JBA has offices throughout Australia, and in San Francisco and London. So far it has specialised in IBM System 34, 36 and 38 computers.

It is strong in the banking market in Australia - it does 40% of its business there with a rival to

company over in 1986. The other 60% of the company is owned by the three founder directors. Nine or 10 staff also have a stake. BIS' £500,000 investment is in the form of new shares; the money is not going to the directors. Allison said BIS had been impressed by JBA's growth, achieved on the back of limited capital. "It needed more oomph to do what it wanted to do internationally," he said. "Very few people in Australia understand the computer services industry. That was why we got the government go-ahead so quickly."

Tesdata goes in for IBM database field

by John Riley
TESDATA, the US performance monitoring systems supplier, announced last week that it had diversified into the IBM database market. As a result of an exclusive agreement with Computer Corporation of America, to market its Model 204 database management system in Europe, Tesdata aims to bite into IBM's IMS (Information Management System) base. Sites already using the system in the US include the White House, and 14 US intelligence agencies including the National Security Agency, says Tesdata. "IMS users have a problem getting data out of the database as it expands and can't work with it easily," says Peter Junker, Tesdata's newly appointed European sales and marketing director. "For those who hate IMS, we can offer an escape route."



JUNKER... "Escape route."

Microsoft quits Unix project

by George Black
MICROSOFT has dropped out of a project to join Unix System V to Intel's iAPX 286 chip and has been replaced by Digital Research. The reason is that the job has turned out to be bigger than either Intel, Microsoft or Western Electric, the Unix vendor, had anticipated. Now Digital Research has stepped into the breach, claiming it can complete the work by mid-1984. Intel's European systems manager Don Street, said it had originally chosen Microsoft to carry out the job but by details of the specification had unfolded, it had become clear that joining up

Microsoft's Unix implementation, Xenix, was not a viable option. The development would not affect Intel's relations with Microsoft, Street said. He predicted System V and Xenix could co-exist, with the former the major force for researchers and academics and the latter as the commercial standard. Digital's director of European operations, Paul Bailey, seems keener on System V than Microsoft has been - he does not have Xenix to nurse. Microsoft's UK manager David Fraser said the company had discovered there was "nothing to be learnt" by continuing the job.

DP squash tournament nears climax

THE data processing industry squash competition, the Wang Line Tournament, reaches its climax at the Lamb's Club in London on December 3 and 4. Finals are between Barclays Bank and DVLC Swansea, and National Westminster Bank and British Aerospace.

Motorola move

MOTOROLA has amalgamated its data communications subsidiary, Codex (UK), and the UK division of its Information Systems Group, which handles Four Phase kit, into one organisation. Motorola Information Systems Ltd. The company is looking for £20-£25 million turnover from its organisation by 1985.

IBM educates

THE first IBM System 38 to be installed in a British educational establishment went into Tynes Polytechnic in Nottingham last week. It will be used for routine administrative processing. It has two Mbytes store and 200 Mbytes of online disk storage.

EEC contracts

THE CAD/CAM Association and the Open University have been awarded contracts from the European Community's multi-annual II programme. The CAD/CAM Association is to help the commission draw up a short term programme to apply research to manufacturing industry, and the Open University has been awarded £75,000 to draw up plans for boosting IT-based educational technology in the Community.

On the rack

DATA General has released a rack-mounted OEM version of its MV8000 32-bit supermini in the US. By using 256 Kbytes dynamic RAM chips and 2000 gate array logic circuits, it has reduced the number of boards from 11 to seven. Also new is Arrayplus, a block floating point array processor costing \$18,000.

By degrees

TWO top names from the computer industry will receive honorary degrees from City University at London Guildhall on December 5. British Telecom director John Alvey, who took an engineering course at City's forerunner, Northampton Polytechnic, over 30 years ago, and ICL managing director Robb Wilmet, who graduated in electrical engineering at Nottingham University in the mid-'60s, become doctors of science.

Rapid contract

DISC and tape supplier Independent Computer Engineering (ICI) of Ashford, which has until now concentrated on the foreign market, appointed Rapid Recall, its UK division of Rapid Recall, its UK distributor last week. ICI packages Rodime disc units and Celer tape drives and adds its own interface, control software and multiplexers.

Heads exchange

AN exchange service for Control Data disc heads has been set up by Leeway Data Products. Replacements can be new or refurbished devices, guaranteed, tested and flown to the original manufacturer's specification. Stocks are held for nine drive types, ranging from the 9448 to the 9760.

Finnish the deal

ELECTRONICS components dealer Bosledge Computer Services of Manchester has moved into the micro market. It has signed a deal with the Finnish micro manufacturer, Nokia, to market its Micro Milko 2, an iAPX 186-based machine with 256 Kbytes store.

Texas and Intertec spur micro revival

by Keith Holder
TWO major micro manufacturers have launched new business computers in a bid to revitalise their tarnished images after market failures and financial problems earlier in the year.

Texas Instruments has released a portable version of its IBM-compatible Professional Computer, while US-based Intertec, also keen to put recent ups and downs behind it, will release its HeadStart 16-bit machine early next year.

TI's portable micro is the second machine in a family designed to cover the whole business systems market, said David Monk, marketing manager for TI data systems group. It uses the same boards as the desk-top model and has the same range of options and facilities, he said.

The company's failure in the home computer market did not affect the business systems division. "Our commitment to the professional sector is total," he added.

He said that while much had been made of the demise of TI's home computer, it was a "strictly limited withdrawal".

Intertec's position in the business micro market rests on its Superbrain, an eight-bit machine which gained wide acclaim when it was launched in 1979. But failure to follow it up with new products put the company in financial difficulties earlier this year.

Brian Jones, marketing director of Icarus, which will market the machine in Britain, denied that the company's fortunes rested on the sales of the new product. "If it isn't an overnight success, Intertec won't become a name of

the past," he added. A portable version of the machine is also nearing completion, said Jones.

Both machines will come on to the European market early next year, when stocks have been built up.

They will face competition for similar machines, including Bytec's Hyperion and a range of portables from Jones, which has announced a 16-bit machine due for release in the UK in December.

Like Bytec, TI has announced a Lotus 1-2-3 option for its professional family and networking facilities. "It's a worthy competitor," said Monk of the Hyperion.

He added that where TI aimed to score over its rivals was in offering complete solutions using a number of different variants of the same machine. "By using the same boards for all, we are giving our customers flexibility without sacrificing the options on software and networking facilities. The cost of the machine will be comparable with the desk-top version," he added.

By comparison, the Intertec machine features a RAM disc which eliminates the need for two floppy discs by allowing users to allocate any fraction of the machine's one-Mbyte main memory to behave as though it were a second disc.

The machine is claimed to be up to 50 times faster than its competitors for enquiry response.

Jones said that in terms of technology and performance the HeadStart would be "as much of a leap forward as the Superbrain was in its day".

Hale's ex-hardware firm tries software

by George Black
STERLING Systems, the company founded by Peachtree's John Hale to write programs for Honeywell hardware, is now branching into software for Scandinavian manufacturer Norsk Data.

The new direction is being taken just a year after Hale - recently promoted by micro market leader Peachtree to its base in Atlanta - sold out his remaining 51% in his Honeywell venture. MSA put pressure on Hale to give up his interest because the company felt it conflicted with the MSA and Peachtree philosophy that the mini had no future.

John Imlay, chairman of Peachtree's parent MSA is on record as saying "the mini is dead". The new bosses changed the name of the Windsor organisation from Hale Computer Services to Sterling Systems and now have changed its goals too.

"We decided we should not have all our eggs in one basket and were looking for another market to put our financial applications suite on," said technical director Ian Nixon. "Norsk hasn't reached the age of complacency yet, as a lot of the



NIXON... "Looking for another market."

makers have - that's why we chose them."

So far, Norsk has less than 100 sites in this country, but its presence is perhaps more significant than the figure indicates, because some of them are large even though shunning publicity - such as British Nuclear Fuels.

Sterling now has two UK installations on Norsk machines, one being City-based engineering consultancy Noble Denton. Nixon hopes to have its entire Honeywell suite of 600 programs converted to Norsk format by mid-1984.

Norsk is keen to collaborate with Sterling because its strength has been in the scientific and technical community, but it wants to break through into the general commercial world.



MONK... "Strictly limited withdrawal."

Wang buys 15% of VLSI Technology for \$34 million

by Dave Madden
WANG LABORATORIES has taken a 15% stake in custom chip maker VLSI Technology, of San Jose, California, for \$34 million. VLSI is one of the brightest young things in Silicon Valley. Its first public share issue was snapped up in February and valued the company at \$66 million - despite the fact that it is just three years old and had losses of \$3.6 million on turnover of \$21 million in 1982.

But what Wang is interested in is VLSI's integrated circuit technology. VLSI is reported to be working on customised single-chip microcomputers - putting CPU, input-output, ROM and RAM on a single CMOS device.

Richard Levy, Wang UK director of marketing, commented: "It is good to have a relationship with a manufacturer in such an evolving marketplace as personal computing. We will be driving VLSI with the specs of new products. It wouldn't be wrong to assume that

we are interested in personal computing on a chip."

VLSI will issue about 2.8 million new shares to Wang at \$12.12 each - the same price as its initial public offering. The company, which also builds ROM chips for video game players, got stung when the bottom fell out of the video games market - it lost \$1.6 million on turnover of \$7.6 million in the first quarter of fiscal 1983 - and Levy expects it to move away from that business and be "more closely geared to requirements from Wang".

VLSI is backed with \$40 million of venture funding - shareholders include Olivetti, and Evans and Sutherland. Corporate investors hold around 15% of the company. In the shorter term, Levy confirmed that Wang plans to extend its VLS range, both up and down market.

IBM has raised its stake in Intel to 16.3%. The company made an initial investment of \$250 million for 12% of Intel last December.

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IT squeezes out rest of university research

by John Riley
INFORMATION technology's growing share of university research cash has put the squeeze on basic scientific research in other fields.

That was among several hard-hitting comments made last week by Professor John Kingman, chairman of the Science and Engineering Research Council, which is responsible for doling out research grants to universities and polytechnics.

Strapped for cash, he expressed his "exasperation" at having to pass up opportunities to collaborate with industry and having to turn down as much as 25% of the top quality "alpha" graded research proposals.

"As a nation we're not prepared to put enough into basic research whereas, by contrast, other countries are increasing it. The

UK is out of step. It is not a luxury. Taking the long-term view, if you don't maintain basic science, then applied science will crumble rapidly," he explained.

Kingman recognises the importance of information technology research, and of the SERC's contribution to the Alvey programme. The SERC has taken the novel move of giving up some of its autonomy to the Alvey directorate when it comes to deciding projects to be supported. One of the major transfers announced recently is that the Alvey directorate will run most of the second phase of Project Universe, the SERC's high speed packet switched satellite networking experiment.

SERC's total expenditure last year was £244.1 million, and of that at least £16.4 million was spent on information technology-related research grants. That is up

on last year's figure of £10.8 million, and the £8.9 million of the year before.

But Kingman acknowledges that other areas are suffering as a result. "We're not in business to help British industry," he warns, "but to maintain scientific capability in universities and polytechnics. However, there must be close collaboration with industry so that universities address real problems and ask valid questions."

The SERC's latest annual report, issued last week, shows that there is already a high degree of collaboration between the Council and the largest IT companies. Employees of most of these companies, including ICL, GEC, Ferranti, British Telecom, Plessey, Logica and Imperial Software Technology, are liberally sprinkled among the academics on committees which evaluate re-

search proposals. In addition two committees, the Information Engineering Committee and the Microelectronics Facilities Sub-committee, are chaired by individuals from GEC, Hirst Research Centre and British Telecom.

Tom Eggington, SERC director of engineering, which funds most of the IT research, says he expects the Alvey programme will eventually get about half the SERC's IT research cash. The remainder will go to IT projects not directly under Alvey's wing.

At present relations between the SERC and the Alvey directorate are good, says Kingman, although he acknowledges that there may be difficulties later on if there is any conflict of interest.

"We've made the decision to back Alvey, though, and we'll have to stick by it," he said.



Not enough money for basic university research

Police to get new incident system

by Nuala Moran
A MAJOR incident system, developed to overcome the shortcomings in information handling apparent during the Yorkshire Ripper investigation, was launched last week.

The major incidents computer application (Mica) has been developed over the last year by Microdata, manufacturer of Real-ly and Sequoia minis, and Bristol software house Isis, in conjunction with the West Yorkshire police force.

Microdata managing director Jerry Causley claimed last week: "Mica is at least two years ahead of any comparable system currently under development in the UK." Mica has yet to receive the full approval of the Home Office, which has its own project, the major incident room index management (Miriam). This is being developed on Honeywell equipment in Essex.

Using Mica, officers without computing experience can enter statements and then ask the database to correlate information using Microdata's enquiry language, English.

Text retrieval can be on part-words, words, sentences or phrases. Mica can also carry out word association, relating words such as jumper, pullover, sweater. Searches can be made of all stored information at the rate of 100,000 words per minute.

Mica has already been tested on seven murder inquiries in Leicestershire, Nottinghamshire, Derbyshire and West Yorkshire. In West Yorkshire it is being tested in parallel with manual



CAUSLEY... "Two years ahead of any comparable system in the UK."

methods.

West Yorkshire asked Microdata to develop the system following the official report on the Ripper inquiry which said the inquiry was hampered by the volume of information, some of which remained unprocessed. The force already had Microdata hardware.

Mica runs on any Microdata mini with one to 128 terminals and can go on site as an incident de-

velops. It can handle between one and 100 incidents at one time, with each incident containing up to 200,000 statements.

Microdata says Mica costs £4,000 a month to run including hardware and software, training, support and documentation. Using a bureau service with four to six terminals 24 hours per day, would cost between £25,000-£30,000 per week.

The strength of the intelligent terminal market is good news for Burroughs, Datapoint, Televideo, Zentec and Raytheon Data

Belfast builds faster chips on existing kit

by Keith Holder
RESEARCHERS at Queens University, Belfast, believe they have cracked the problem of making faster and more dense microcomputer chips using conventional manufacturing techniques.

A tenfold increase in speed has already been achieved with a chip which contains 25% more circuits, but is no bigger than a standard device, said Dr Harold Gamble, one of the development team.

The results have prompted the Science and Engineering Research Council to award a grant for £300,000 to cover further work over three years.

The secret behind the results is the ability to precisely align contact layers during the manufacturing process, which saves space on the silicon - normally used as a "safety margin", and "register" aluminium on the polysilicon links

between individual transistors in the chip.

Gamble said that while results had been promising, he did not anticipate any industrial involvement during the next two years.

He believes that when work on the production process has been completed industry will be interested. No new technology is involved and manufacturers would be able to start manufacturing the chips quickly.

Applications for the fast chips could include monitoring high-speed industrial processes and faster processing for engineering or scientific tasks, which are possible only using larger machines, said Gamble.

Original work on the project is a result of earlier studies carried out in the department, jointly funded by the university and the Ministry of Defence.

Intelligent terminals a personal challenge

by John Kavanagh
INTELLIGENT terminals are competing more and more with personal computers and even small business systems, and sales by US firms alone will reach \$1,800 million next year. Meanwhile the terminal market as a whole is growing by 15% a year and US suppliers sales will be \$7,300 million in 1984.

These points emerge from a report* on the US computer industry by research firm Venture Development.

The strength of the intelligent terminal market is good news for Burroughs, Datapoint, Televideo, Zentec and Raytheon Data

Systems, which are listed as the leading suppliers.

Elsewhere the report suggests the leading computer manufacturers will become even more dominant because of terminal sales. IBM, Digital Equipment and Hewlett-Packard are the top suppliers of alphanumeric terminals - and that is by far the biggest section of the market, with over 60% of all terminal revenues. IBM 3270s and compatible terminals alone will have about one-third of the business.

*The US Computer Industry, \$1,050 Venture Development Corp, One Washington Street, Wellesley, Massachusetts 02151, US. Tel: (617) 617 237 3000. Telex 709190.

Advanced PC in UK next year

by Keith Holder
THE advanced version of the IBM Personal Computer, the XT/370, is coming to Britain, but not for another year.

An announcement of UK availability, which follows the US launch of the machine by only a few weeks, said that the XT/370 would be shipped from September 1984, with a price tag of £8,228 for a machine with 10 Mbytes of disc storage.

In addition, there will be a one-time software charge of £919. European models will be built at IBM's factory at Greenock.

The machine can act as a standard personal computer, a VM/CMS workstation (through a link to an IBM 370 mainframe) and an intelligent two-display terminal, using the same link.

These features are made possible by the development of new processor chips, in partnership with Intel and Motorola, for the mainframe link, virtual storage and communications.

When used as a VM/CMS workstation, the machine can run some System 370 software and has up to four million characters of virtual memory.

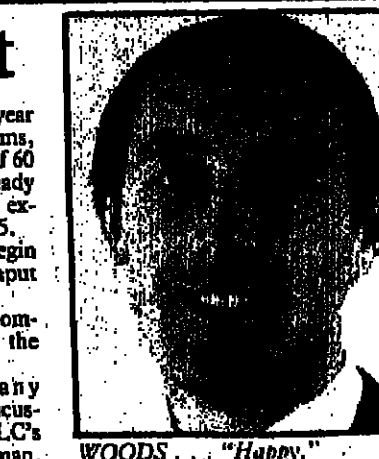
New Sperry viewdata kit

by Donald Kennett
SPERRY has launched a new mainframe-based viewdata system. It runs on 1100 Series mainframes, and is designed to enable companies to provide access to their services, or facilities for buying their services, for a wide range of home users.

Sperry previously experimented with viewdata by supporting the marketing efforts of one of its systems houses, Surrey-based Dwyer-Thomson, which in 1980 developed a system to run on Sperry V77 minis.

But the latest system, called Sperry Videotex 1100, enables residential users - suitably screened by the security procedures - to access mainframe-based applications without the complications caused by duplicated databases and intermediate machines covered by separate support and maintenance arrangements.

A number of Sperry users throughout Europe were developing trial applications of the system, said UK videotex product manager Richard Whiteman.



WOODS... "Happy."

US company wins £1 million DVLC contract

by John Riley
US company Scan-Optics has won a £1 million contract to install two optical character recognition systems at the Driving Vehicle Licensing Centre (DVLC), Swansea.

"The systems were extensively evaluated and we have now won CCA approval," said newly-appointed UK general manager John Woods. "We're happy to get our foot in the door."

According to a DVLC spokesman IBM laser printers, which are to replace the current offline drum printers, may just pip

optical character recognition (OCR) systems in going live early next year.

Nevertheless, the order is a feather in Scan-Optics' cap, as the company adopts an increasingly more aggressive stance in the UK.

The systems were extensively evaluated and we have now won CCA approval," said newly-appointed UK general manager John Woods. "We're happy to get our foot in the door."

The two 3540 systems will read 130 documents a minute, and will record the car registration

numbers and other relevant details on to magnetic tape.

Scan-Optics is currently installing the systems in a £1.5 million deal with Barclays Bank to process sales voucher coupons for the Barclaycard operation. The first phase at Northampton has just been completed, and the second phase, at Middlesbrough, goes live in February.

An additional 10-year maintenance agreement goes with the DVLC order.

DVLC is well on the way to being fully converted by 1987, said

the spokesman. The two-year conversion of existing programs, related to the main file record of 60 million documents, has already started, and the mainframe is expected to go live in late 1985.

A pilot scheme, due to begin next year, will integrate input processing.

Scan-Optics was the only company invited to tender for the DVLC contract.

The only other company involved in preliminary discussions could not meet the DVLC's specifications, said the spokesman.

MICRO NEWS

MOM pips Apple with links to mainframes

by Claire Gooding

ONE step ahead of Apple itself, MOM Aberdeen is linking Apple micro users not just with IBM machines, but to any make of mainframe. MOM Aberdeen has released the Apple version of its all-purpose communications link, Able.

MOM plans to bundle the Able communications link with a Z80 card which can plug into Apple machines. The company is talking to Apple UK on the commercial possibilities of the product and has already been approached by a large French company with a view to packaging the product.

MOM Aberdeen managing director Colin Harkin does not see Apple's recent announcement that it will tie the IBM line as damaging Able's prospects.

"It depends whether Apple users want to talk only to IBM machines. If they want to talk to Univac, DEC, Data General and ICL as well, then Able is a better option."

Interim floppy standard is set

by George Black
THE government is set to adopt a new software package as a stopgap measure in its bid to set a micro-floppy disc standard.

While rival drive and media makers vie for a share of the rapidly growing market for compact sub 4-in floppy drives, most standard-setting bodies in Europe and the US are holding back from endorsing any particular format.

But the UK public sector technology buying agency, the Central Computer and Telecommunications Agency (CCTA), is now looking at National Computing Centre software which converts native format code to the ISO international standards it has picked out for the Sony 3½-in drive chosen as a hardware standard two months ago.

The CCTA's Dennis Morley says the package needs about £12,000 worth of funding to link it into shape with adequate documentation. The agency is consid-

ering putting up the money as a "half-way house" in resolving the long-running controversy.

"We will be going to see the main authors of operating systems, including Microsoft and Digital Research, after our working party meeting," said Morley.

"Ideally, we'd like to reach an agreement with them which would avoid this type of conversion. But we're picking up the NCC system as a useful idea we could fall back on if necessary."

The CCTA used Compec at Olympia as a channel for views on the issue, with five stands inviting contributions to the debate. Morley's team is now vetting responses.

In September a public services working party adopted Sony's 3½-in disc as the basis of a proposed new standard.

Morley said he was anxious for a decision to be reached soon because next year sales in microfloppies would rise rapidly in both

business and domestic sectors. At present there are three drive sizes in the race, with Sony's 3½-in and Hitachi's 3-in as front-runners.

The Local Authorities Management Services and Computer Committee (Lamsac) is also backing the CCTA initiative, and the Department of Trade and Industry's Focus committee has welcomed the work. It has endorsed the principle of major procurement authorities collaborating to identify single sets of characteristics to meet user requirements, and reckons the action is particularly useful in an environment where the market remains fluid.

But time is running out for a successful bid to derive some sensible consensus from the commercial parties involved. Unless a result is obtained in the next few weeks, it looks as though the outcome could be thrown to market forces to determine, leaving many end-users as confused and frustrated as ever.



EARL... "A market in its own right."

Quest opens micro training school

by Caroline Burgess
QUEST International is aiming to consolidate its move into the micro market through its own microcomputer training school in Southampton.

"Training is now a market in its own right," said Tony Earl, Quest International managing director. "We looked at the dealer market to see what is now needed and what we could offer - and there is a definite need for training."

The school will offer training on general topics such as evaluating hardware and software and specific courses on business applications. "There is a lot of education needed," said Earl. "We aim to take away the air of concern people have about computers. It is just as important to tell them what they cannot do as well as what they can."

Last month Quest moved into micro selling, handling kit from ACT and Digital Equipment with peripherals and software through its subsidiary Quest Computer

Services. And it is moving straight into third party maintenance, taking micros to the stable of products it already maintains.

Peter Turton, Quest Computer Service director of operations, says this will bring commercial business to the groups already involved with engineering and maintenance work within Quest.

The micro training school opened this month, and has so far run three courses. The demand has been overwhelming, said Earl, and there are plans to run 5 courses before next March. A second training centre planned for London should be open before the end of the year.

"Any company dealing in microcomputers must ensure that adequate training is available," said Earl. "We have made considerable resources available and recruited highly skilled lecturers. Everything has been designed to give the first-time user every assistance in operating a microcomputer."

Pixel moves into UK to push its supermicro

by Caroline Burgess
US MICRO manufacturer Pixel has set up a UK subsidiary in a bid to push sales of its multi-user 68000 based supermicro, first launched in the UK in March.

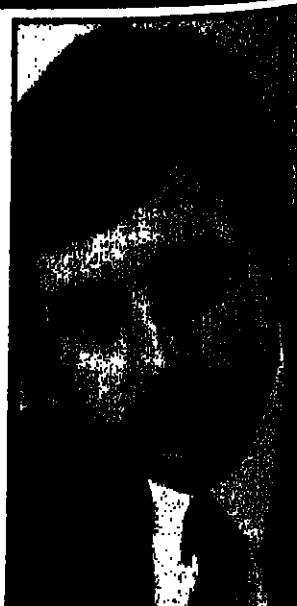
Based in Cheshire it is responsible for marketing and support throughout the UK and Western Europe of Pixel computers.

"Our aim is to be the major distributor of Unix 68000 machines in the UK," said Jan Klin, Pixel UK managing director. "The Unix-based market is expanding rapidly. In the US it is explosive."

Klin says the reason for the increase is the amount of commercial software now readily available for Unix machines, including the Peachtree range.

"At the moment we employ eight people, but we aim to increase this by at least one a month," said Klin. "Sales have been excellent without really trying - yet."

"We have had 25 OEM deals to date and hope to have about 300 machines installed in the first



KLIN... 300 machines installed in first year is the aim.

year," he said. "It sells on price-performance plus the great range of software, and offers 13 languages."

The Pixel 100AP is a multiprocessor design offering 6 Mbytes main memory and up to 100 Mbytes on Winchester discs. It will support up to 16 terminals and costs £10,000 to £30,000. Each extra workstation to expand the system costs £510.

THE TECHNOPRENEURS



Tony Davies, Chief Executive, Information Technology Ltd.

Information Technology Ltd (ITL) markets computer based systems for business administration and office automation. It was formed in 1980 when Davies, an electronics graduate, acquired control of Computer Technology Ltd and backed a spin-off from IBM. ITL now operates as a parent company to three wholly-owned subsidiaries - Computer Technology Limited, Office Technology Limited and Network Technology Limited.

In early 1983 ITL decided to raise further capital for expansion and Citicorp Development Capital, together with other investors, helped provide the necessary finance.

Employees 500. Turnover £18 million.



Tim Coldwell, Chief Executive, Xenotron.

Xenotron is the brainchild of its founder, Tim Coldwell, who started the company in 1976. The company designs, develops, manufactures and markets through sales and service subsidiaries in five countries a range of intelligent graphics work stations for the electronic technical publishing (ETP) and graphic arts industries.

In 1981, Xenotron decided to raise further capital for expansion and Citicorp Development Capital provided equity and debt finance and took a 10% stake in the company.

Employees 120. Turnover £5 million.



David Gare, Managing Director, Instem Computer Systems Ltd.

When the US parent decided that this Staffordshire computer systems subsidiary, though successful, did not fit in with its long term development strategy, the management, led by managing director David Gare, decided to bid for the company.

He then approached Citicorp Development Capital, whose swift response and detailed industry knowledge were instrumental in bringing the deal, which involved re-financing as well as buying out, to a successful close. Since then, the company has increased its penetration of UK and overseas markets aided by Citicorp's network of contacts.

Employees 100. Turnover £3 million.

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* We are prepared to take a long term view of investments, and will help determine the exit route most suited to the requirements of the company: Stock Exchange or USM listing, selling on to another company, or a repeat buy-out of our equity by the management.

* CDC's professional staff come from general management, technology, and manufacturing, as well as financial

backgrounds. They are therefore able to understand the entrepreneur's business and investment needs, and can contribute continuing assistance and expert advice on the company's development.

* We have access to the international network of Citicorp, the world's largest financial institution.

* For particularly large investments, we can assemble and lead a syndicate of investors.

"Senior CDC executives give the impression they are professionals in a rather amateurish market. Their 'modus operandi' is based on the phenomenally successful venture capital offshoot of the mighty Citibank." *Financial Weekly, April 15 1981*

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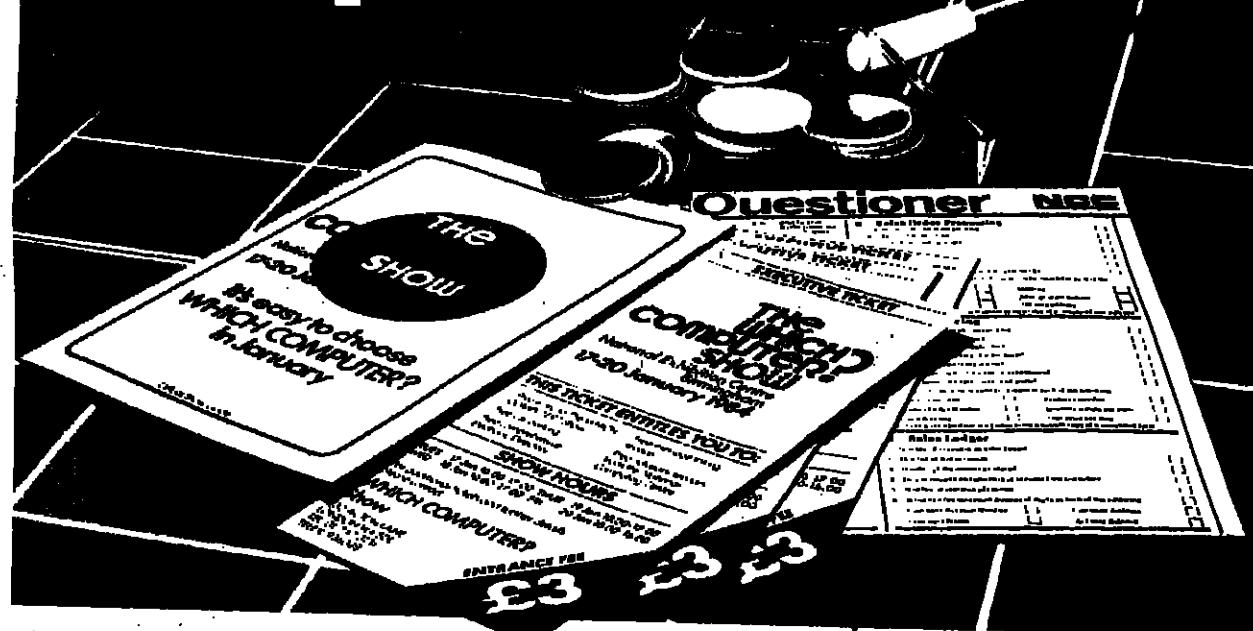
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Bureau to raise \$1 million in City

AN American computer bureau offering legal services is planning to sell 30% of its shares on the London stock exchange and set up a subsidiary in this country.

Atis is the offspring of the uranium mining corporation UNC Resources and was set up to help in its long-running lawsuit against Gulf Oil. The bureau uses IBM's mainframe in Connecticut to search the records of a legal opponent once a court has given an order for them to be made available.

Atis has 30 big companies among its US clients. Others, including Control Data and Informatics, offer similar services, but in Europe this field has yet to be opened up.

Chief executive John Aseltine said they intended to raise \$1 million of working capital from the placing of shares, with 40% retained by Atis and 30% by its parent. The new subsidiary would be established in London within the next year under British management.

Going to the London stock exchange instead of New York would give them substance when talking to British clients and enable them to get an earlier footing in the European market, argued Aseltine.

CCTA man doubts Unix value

EXPECTATIONS of the Unix operating system were damped down by a government official last week.

Jeff Webb, of the Treasury's Central Computer and Telecommunications Agency (CCTA), told a meeting in London he was "less than convinced" that Unix would achieve the dominance predicted for it.

He was speaking at the first proprietary software show for BOS products presented by their author, MPSL.

Afterwards he said that public systems would need high user-friendliness, which Unix lacked, and that Unix consumed such a large amount of resources that the cost-conscious British government might be deterred.

"I don't want to give the impression that Unix won't be important. But to take a substantial share of the market it needs someone to come up with another shell and more multi-user facilities."

The CCTA, which will next year be the country's biggest micro purchaser, was already spending a third of its operating systems bud-

get on multi-user programs, he told the 500 guests at the show.

Social Security, which would be buying 3,000 machines for its local office management project, would have to choose an operating system early next year which would be single-user but multi-tasking and would support Level II Cobol.

"Many users may well decide that MS-DOS or Concurrent CP/M are perfectly adequate for their needs," said Webb.

MPSL managing director Alistair Jacks warned that confidence in the software industry could be undermined by what he called "the terrifying scramble for volume."

Companies had to make and sell more and more to gain the same revenue as prices of both machines and programs continued to decline, he said. There would be an inevitable public reaction against this scramble.

MPSL plans to set up 30 micro service centres in the UK, to be followed by others abroad to try to close the knowledge gap and set thousands of small firms on the right track, Jacks said.



JACKS... "Terrifying scramble for volume."

MPSL would achieve a turnover of \$6 million in 1985, less than five years after setting up in business - but that figure could have been as high as \$10 million but for the "unreasonable exchange rate", he added.

Introducing the show, Tycom chairman and Euro-MP Sir Jack Stewart-Clark had spoken of

"enormous opportunities" for UK software exporters in the US and Japan - provided they were prepared to put as much effort into marketing as they did into creating the goods.

MPSL launched two new modules at the show - a financial modelling system and a micro-mainframe link.

Database boost for the Vax

THE Vax mini is getting a new database along with the transaction processing system, Vax-11 ACMS, launched by DEC. The ACMS application control and management system is aimed at environments where large numbers of users have to share the same files and data.

Combined with the Vax-11 database system, ACMS comes close to providing a total information system, an area where DEC has lagged behind IBM and compatible manufacturers.

Lex to run on PC

LEX, the word processing package developed by Filetab author Tom Barnard, has been converted to run on the IBM-PC. Barnard, now managing director of Ace Microsystems, said DEC has bought 1,000 copies of Lex to sell on its Professional micro in the US.

Delta link-up

LOTUS 1-2-3, the fast-selling micro spreadsheet, is to be linked to Compsort's Delta database, allowing users to pass data to and fro. The developers say that demand for the interface has come from IBM-PC users. Delta has already been hitched to Micropro's Wordstar and will soon also be compatible with another popular word processing system, Peachtree's Peachtext.

Condor rewrite

THE relational database Condor is to be rewritten in C, the native language of the Unix operating system. The rewrite will make Condor, one of the more powerful data management and application tools, portable across all machines now running Unix. The package is being linked with spreadsheets such as Lotus 1-2-3.

Range grows

TYCOM, maker of the British Microframe machine, has added the UCSD p-system to its software range through a deal with Basingstoke distributor Asolv. Users can now have CP/M, MS-DOS, Xenix, Bos and p-system simultaneously on Winchester disc.

Programs to rent

WILTSHIRE software house Parwest is going into a new line of business, software rentals. The Chippensham firm aims to rent programs from 6,000 outlets in a drive it is calling "The Enterprise System". Managing director Keith Park says the idea could reduce the risk for businessmen of an expensive mistake.

Training deal

DISTRIBUTOR Vector International has sold \$220,000 worth of micro training software to Rank Xerox. The programs developed by Microcal are to assist new users of MS-DOS, CP/M Plus, dBase II, Multiplan and Basic. The total sales comprise 60,000 units.

Lookalike offer

SAGE micro distributor TDI of Bristol is offering the Unix lookalike operating system Idris, written by Bill Plaughter, president of Whitesmiths and formerly one of the Unix development team at Bell Labs.

When you've talked to the other company, talk to Digital Research and talk yourself out of the language problem you just talked yourself into

Digital Research offers the broadest range of high performance programming languages and programmer productivity tools for microcomputer software development. And makes them source code compatible across all major personal computer operating environments: single-user, concurrent, multi-user and networked CP/M, IBM's Personal Computer DOS and Microsoft's MS-DOS.

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CIS COBOL, the Compact, Interactive, Standard Implementation, has become the most widely favoured Cobol overall because of its powerful data processing functions.

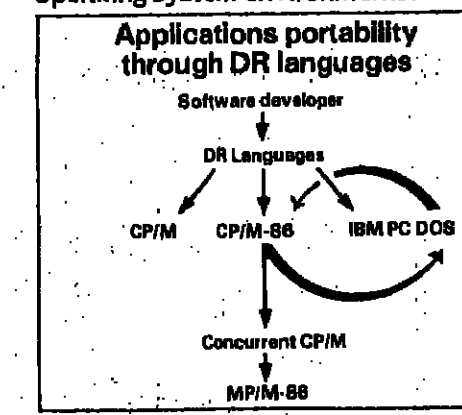
For micro-to-mainframe development, Level II COBOL features native code generators for faster execution and ANIMATOR logic display for debugging at source code level.

For highly advanced, commercial, scientific and systems

level program development, PL/I is the state-of-the-art Digital Research implementation that combines the block structures of ALGOL, the string handling of COBOL and the numeric functions of FORTRAN.

And recently released DR FORTRAN 77, a high performance Digital Research full ANSI 77 implementation.

And for fast, powerful, elegant systems implementations, Digital Research's new C Compiler, a feature-packed enhancement of C supported by a run-time library that handles everything from transcendental functions to input-output. An integrated answer to all your programming needs. And, like all Digital Research languages, source code compatible across a complete range of microprocessors and operating system environments.



The C Compiler programming bridge extends, additionally, to UNIX

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FRASER... "We're taking the IBM open door policy."

CACI comes up with a problem solver

by Claire Gooding
DATABASE consultancy CACI is moving into software products with a development tool which has grown out of its analytical expertise. The System Factory, put into practice the data analysis techniques which have made CACI well known, incorporating them into a software product which concentrates on the design as much as on the production of code.

"The trouble with generators is that all they do is allow you to generate your errors more quickly," said Athar Shareef, vice-president of the CACI business systems division. "While most products do help with code productivity, they are not really addressing the problem. We identify key areas as being correctness and completeness of the analysis."

The System Factory is a problem solver as well as a code generator and productivity aid. It comes close to being an expert system since it works along a set of analytical rules, interpreting them according to the user's own data

and input on the particular problem to be solved. It grew from CACI's Adam System design methodology.

There are three major components: the analyst's workbench, the designer's workbench, and the applications generator. The data built up in the first section goes into a model which describes what the business does and how.

The designer's workbench generates system tables dealing with the installation and its hardware and software configuration. The final system is claimed to produce bug-free code.

If the software sold by CACI manages to change the direction of code production in large shops, it could mean the end of the traditional analyst/programmer role.

The first mainframe on the System Factory works on IBM kit running CICS and VSAM and has an entry price of £20,000. It generates code in Cobol.

The mini version generates code in Basic and is available on MAI Basic Four minicomputers for about £12,000.

CAD bureau follows Europe line

by Keith Holder
A NORTHAMPTONSHIRE firm has entered the computer-aided design (CAD) bureau market, using a formula which has been operating successfully in Europe for six years.

R & H Systems of Wellingborough is offering contract design and drafting, using its Auto-Trol system, for companies with engineering, construction and manufacturing applications. This can be done either by in-house staff or by a member of the client company who would be trained to use the system.

For companies too far from the bureau or wanting to carry out

designs on their own premises, R & H will lease a terminal connected by modem link.

"There is a potential market for this service with companies which need the performance we can offer but cannot afford a machine," said managing director Hans Geluk.

He said the bureau needed only between four and six clients to be in profit, and he thought local industry was already sufficiently interested to meet this.

"We have built up the bureau around a specialist team who have experience of a wide variety of systems and applications," said John Spencer, who runs the bureau.

The company is responsible for all servicing and maintenance of Auto-Trol equipment in the UK.

The Auto-Trol system, manufactured in the US by Auto-Trol Technology, is a 32-bit machine developed for engineering design and used in areas as diverse as pipeline design and preparation of maintenance manuals.

The company is also taking on new distributors to fill gaps in its CAD range left by the loss of contracts with Vector General and Genisco earlier this year. These include colour graphics systems from Control Graphics and CAD systems from Interactive Machines.

You'll, who saw a demonstration of the method of calculating productivity of different types of software engineering, reported that he was impressed.

The Hungarian programs run on either DEC Vax superminis or IBM mainframes. Scicon sees it as an aid to in-house projects, particularly in assessing ways of approaching fixed price contracts.

Sci-L is looking for distributors, but Scicon would prefer to use the method itself before considering adopting it for sale.

Scicon software development manager Winston Muktersingh commented: "A lot of facts of faith are being committed in software engineering without any way of measuring productivity. No matter how much procrastinating we do for software, it won't be adopted by the hard-nosed businessman unless we can show that it really will show an economic improvement."

Software File is compiled by George Black

PROFILE

Man at the heart of satellite boom

BILL PERIGARD is at the very heart of the rapidly expanding satellite communications industry. As the recently appointed president of Comsat Technology Products he heads the giant Communication Satellite Corporation's (Comsat) manufacturing business and will oversee the massive increase in data communications by satellite going ahead soon.

"At present, a very high percentage of communications over satellites is primary voice traffic," he says, "but I do feel now that data communications are at least coming over the horizon, even though a number of companies have gone broke in the US waiting for them."

"The main areas to be sorted out are signal processing, protocols and error correction," he adds. "Getting chunks of error-free data across is a problem at present: we can suffice with a 64 Kbits transmission rate now, but for big data pushes we need to transmit on a larger bandwidth to optimise data communications and make better use of satellites."

"Satellites are about transparency," he says. "You've got to do the handshaking before releasing data for transmission."

Perigard is well-placed to overcome these problems. Comsat runs virtually all international satellite communications to and from the US, is the US participant to the international Intelsat and Inmarsat satellite networks, and owns Comstar, the US satellite system for domestic communications.

Comsat Technology Products

comprises three companies: Compact Software, which produces programs for microwave circuit engineering CAD; Amplia, which designs microwave amplification systems; and Telesystems, which manufactures digital signal processing equipment for telecommunications.

Perigard gives a conservative estimate of two years for the widespread introduction of data traffic on satellite systems. "We think we know the answers in concept and are getting them to work in the test beds - but we've seen too many things that work in laboratories but not in the real world."

Among its many enterprises, is a third share in Satellite Business

by John Riley

Systems, the all-digital communications service set up in 1975 and operated via three satellites owned by the company. The other two participants are IBM and the US insurance giant Aetna Life and Casualty.

The company is still getting off the ground, and although revenue last year increased to \$39 million, its net losses were \$122 million.

"SBS is very much going to plan," said Perigard, "it is ahead of schedule in every area for 1983, and we are more interested in the business becoming successful and being on the right track than worrying about quarter by quarter profitability."

He explains the difference between IBM's role and that of Comsat: "IBM does a lot of data

manipulation whereas we are concerned with the transmission of data over satellites, especially with the analytical concepts of transmission and signal processing on the ground."

Perigard does give the question of satellite vulnerability some thought: "I do worry about vulnerability of satellites, so we have to be prepared for ways of protecting them - we are researching in that area."

"I compare satellite vulnerability with fibre optic cable vulnerability - but we've seen too many things that work in laboratories but not in the real world."

"Essentially, however, with or without the security question we all need media. Each has strong points in fulfilling different communications requirements," he added.

"For example, fibre optic cables are great point-to-point bulk carriers. It would be foolhardy to rely on one method to the demise of the others."

Perigard shares Comsat's concern about the Orion proposal, to set up a rival international public satellite service.

"That's the classic case of cream skimming," he said. "It does not propose to take the risk in serving the lower, regional traffic systems. As far as we know in Comsat, it would violate the 1963 Communications Act as well as Intelsat regulations."



PERIGARD... "Over the horizon."

Perigard, who was the Fairchild Space and Electronics Company's director of operations before joining Comsat in 1978, sees plenty of spin-off from the satellite communications programmes.

"The basic fundamental techniques can be applied to terrestrial transmission media," he says. "For transmitting to satellites we are working on receiving data at 1/4 Mbits and reformatting it and transmitting it in 54 Mbit bursts. The technology involved has applications in terrestrial local area networks based on fibre optic cables."

PLATFORM

Do users deserve better standards?

DO users view things through half-closed eyes? The word "standards" doesn't awake the enthusiasm among users which some of us think it deserves: the view, if not through half-closed eyes, tends to be through glazed ones. This is, up to a point, a defensible attitude to take today. The question is, how long will it remain so?

Let us first define what we are talking about - communications standards. The words, ironically, convey different meanings to different people. This article is not about "good practice", not about quality control. It is about agreed, quasi-legal definitions (of the kind produced by the British Standards Institution), to which products must conform, in the specific area of communicating electronic devices.

Now is the time for users to stress these points as loudly as, often, and in as many ears as possible. "OK," you say, "but you haven't said what we do during the intervening five years."

There are three possible broad strategies. The first strategy is to do nothing about communications standards; or rather (since under literally this would mean having no electronic communications at all, which seems drastic) to do the minimum. The half-closed eye approach, in fact.

What that means in practice is to solve each communications prob-



This is an extract from the *National Economic Development Office report: A User Perspective on Information Technology.*

sider vital for the proper establishment of communications standards are:

■ That the definitions should contain no ambiguities and, for any one functional purpose, no alternatives.

■ That there should be independent, and internationally accepted, testing of conformity.

■ That cost-efficiency of implementation should be a criterion of whether a standard has been fulfilled.

Now is the time for users to stress these points as loudly as, often, and in as many ears as possible. "OK," you say, "but you haven't said what we do during the intervening five years."

There are three possible broad strategies.

The first strategy is to do nothing about communications standards; or rather (since under literally this would mean having no electronic communications at all, which seems drastic) to do the minimum. The half-closed eye approach, in fact.

What that means in practice is to solve each communications prob-

lem as it comes up ad hoc, and as overall strategy. It means not setting up communications where you don't have to, and where you do have to, using the simplest available means.

There is a lot to be said for this approach in the short-term. The snags are longer term - eventually the set of last-up users are creating will become unmanageable and will have to be replaced by something better organised, and the breadth and variety of the problem you will by then have created for yourself will make the transition pretty painful.

Nonetheless, if you feel a series of ad hoc solutions can be kept under control for five years or so, giving you in due course a once-for-all transition to proper standards, this may be a sensible strategy for you.

The second strategy is to adopt a manufacturer's full-blown set of standards (or non-standards). The short-term benefits of this strategy are that it is a ready-made way of setting up intercommunication, and it should avoid the clutter of ad hoc arrangements just discussed.

The short-term cost is that it restricts you to intercommunication only between items from that one manufacturer (plus maybe his one manufacturer's (plus maybe his one manufacturer's) satellite followers). The long-term risks are that it may lock you into risks that that manufacturer, and may also hence exclude you from areas of the technology where he may have no products to offer.

Most manufacturers are saying that they intend to adapt to conform to proper standards when these are available; and it seems likely that they mean it, so what is the problem? you say.

First, they may find that adaptation hard to achieve without sacrificing either compatibility

or performance.

Second, they may find that adaptation hard to achieve without sacrificing either compatibility

or performance.

Third, they may find that adaptation hard to achieve without sacrificing either compatibility

or performance.

Fourth, they may find that adaptation hard to achieve without sacrificing either compatibility

or performance.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, December 1, 1983

Ada compromise must be reached

ADA may not be everyone's cup of tea, but if Britain's future depends to a large extent on its software expertise, then Ada is a vital language for us to learn.

It is not like developing the next generation of airliners; the UK could have chosen not to build Concorde. The American Defence Department has said Ada will be the basis of real time systems in the 1990s; so it is likely to be dominant in the US, but worldwide. The UK has enough good brains in real time programming to make a major contribution to these developments and reap big rewards.

That is why this week's announcement that the Defence and Industry Ministries and British Telecom have dropped one of their main Ada research jobs is little short of a disaster.

The ostensible reason for the breakdown of talks on financing the plan was that BT and the MoD wanted to fix the price. The programming consortium wanted to safeguard themselves against an overspend by signing the old-style cost-plus type of contract.

Both views have a point. It is understandable that the MoD wants to get away from the system of paying its subcontractors which has cost the taxpayer so dearly over the years and attracted much adverse criticism. It is also clear why BT wants to appear thrifty as it flexes its muscles before its sale to the private sector.

Software houses, for their part, are naturally afraid of committing themselves to complete such a novel venture precisely on cue. Anyone who ever did a debug can appreciate why.

But should they have allowed negotiations to break down? It may be that those holding the cheque book are indulging in a little brinkmanship against ICL and its partners. If so, it is a dangerous game to play.

The Augusta Consortium, led by CAP, is anxious to get in on the work which the Industry Department did not originally offer it. But it already has its hands full in supplying the tools to support the new environment. It is doubtful whether it could tackle the whole thing alone.

So, after the squabbling over how the cake should be cut, it seems there may be no cake after all.

It is small consolation for us to note that some of the American tasks are also running behind schedule, although it is futile to pin our hopes on the Pentagon delaying its commitment.

All involved should quickly learn the meaning of compromise.

Too much to ask?

THE industry's latest initiative to prod the government into changing the copyright law is to be welcomed. It is over two years since the Green Paper on the issue, yet the government has still taken no action. It says it will not do anything on a piecemeal basis, and we have to wait for the broader review of the subject. When will that be? Not before the next election - that is the betting of some who have been following the issue closely.

Without being too cynical, it is likely that the next Cabinet would decide to throw the whole concept into the melting pot again. So, no visible progress between 1977 - when an official report urged bringing the law up to date - and 1987, the earliest likely date for a general election.

We have said this before, but it needs to be said again until something is done: any government claiming to want an environment that encourages enterprise must ensure that inventors get the fruits of their labour. If the Cabinet backslides in this, surely there is an MP with enough vision to take up the challenge from the information technology business and make copyright the subject of a Private Member's Bill.

It is surprisingly simple, after all. The British Computer Society only wants "literary work" to be re-defined to include "computer programs" and "writing" to be construed as covering "input" and "output". Is that so much to ask?

What, then, should you specifically do in pursuance of the third, the open-ended strategy? A lot of miscellaneous pieces of advice can be added up to a scrappy strategy, as we have said. We think that make sense but one of the prices to be paid for the benefits of the third strategy is that the eyes have to be kept open.

THIS week's example of the strange things people say about computers was sent in by Jon Talbot of Tewkesbury, Gloucestershire, who wins £5.

Computers don't always spell words in their dictionary forms, e.g. program and disk.

What's On in Gloucestershire.

Continued on page 17

LETTERS

Critics should observe rule of etiquette

ONE of your reviewers appears to have forgotten the book critics' first rule of etiquette - that if you are going to state a book, you should read it thoroughly first.

I refer to Arnold Arnold's review of *Build Your Own Expert System* by Chris Naylor (*Computer Weekly*, November 10).

It may be forgivable for a hard-pressed reviewer to skim over those last few chapters if he is broadly in sympathy with the writer's viewpoint and plans to tell the world so (though it is not to be

encouraged). But when a critic kicks an author where it really hurts - in the royalty statement - he is morally obliged to understand what he condemns.

Yet the review states: "If you believe that a cold day is likely to be followed by a warmer one (or vice-versa) and that this increases the likelihood of rain by 60% you then enter that fact into your information matrix. If you think you know something else that creates a 40% likelihood of rain, you enter that figure as well. You

then average the total and get 50%."

"I don't need a computer for that. I can arrive at precisely the same conclusion by flipping a coin. But then, as Naylor states from the start, that's not really the point."

Flipping a coin is indeed beside the point. A more important point is that, having read the book from cover to cover, I cannot find adding up and averaging probabilities recommended anywhere in it as a method of combining evidence.

On the contrary, the method

proposed uses Bayes' rule - which is not a simple averaging scheme. See, for instance, pages 43, 193-194, 204 and 232.

I look forward to the day when Naylor reviews Arnold's forthcoming magnum opus in your pages. I do not need Bayes' Theorem to predict that Arnold will then receive more conscientious treatment than he saw fit to dish out in this case.

RICHARD FORSYTH
Hexadecimal Press
London.

Incorrect title

I WAS flattered and delighted to find that comments I made at a recent conference, criticising the government's Data Protection Bill, were given headline treatment (*Computer Weekly*, November 3).

However, I must correct a statement made in your report: I am not the chairman of the Council of the Institute of Information Scientists - I am not even an ordinary member of the institute's council. It is true that I was responsible for preparing the institute's submission on the Bill, but the views I expressed at the conference were purely personal.

DR COPPENHEIM
Billerica

Operators aren't nodding morons

ON reading Margaret Park's article *Tales of the Op's Death* are Greatly Exaggerated (*Computer Weekly*, November 10), I was appalled that a person in a deputy editor position of a leading computer newspaper could have such antiquated ideas of the roles of modern operators.

In one article the careers of operators were reduced to being nodding morons, shuffling around in a geriatric ward, awaiting early retirement in five years' time. Or if the gods were smiling, elevation to the heavenly world of programming.

Being part of an operations de-

partment and coming into contact with many other operators from a wide range of companies, I can state quite categorically that operators live as far from sedentary as they can.

In a world where users are much more aware of the functions computer systems can and cannot perform, operators is often at the sharp end of user liaison, with consequent high demands on technical and diplomatic skills.

With the demise of heavy centralisation of computer resources and increase in front end processing, operators now require a thorough understanding of both

mainframe and minicomputer systems. They are now a powerful force within the IT team and an important asset to system design and implementation.

I implore you to subject even your deputy editors to high standards of research and accuracy that your paper usually abides by.

Operators are by no means dead and I have no intentions of drawing my pension in the foreseeable future.

S. P. McDONNELL
Chief operator
Lowndes Lambert Group
Swindon



Continued from page 16

with their existing standards or performance under the new standards (or both). Either of these sacrifices would be painful for users.

Secondly, they may not be motivated to make transition easy or cheap for their existing users (as contrasted to their prospects). Their self-interest could be seen as lying in the other direction; and it would not be difficult to make transition as difficult as possible, or the performance resulting from their use unattractive, if they were so minded.

Thirdly, will they really all adjust their existing standards when they have evaluated the technical and commercial implications? The amount of pressure users bring to bear may be crucial here.

However, there will again be people for whom this second strategy is right. If you feel that your problems in the next five years will be intractable without a concerted strategy, and if you believe either that your favourite manufacturer (plus his satellites) will supply all the communication system components you will ever need, or that he will give you a decent transition to proper standards in due course, then maybe this is the strategy for you.

But the first strategy is one of half-closed eyes, the second could be one of rose-tinted spectacles. The third strategy consists of taking steps towards the eventual proper standards rather than away from them wherever possible, of minimising the eventual transition to them, of climbing up the early part of the learning curve of applying them. It is not elegant: it is scrappy.

It is not optimum in the short-term, but it could bring substantial advantages in the long. And it does seem preferable to the first two.

What, then, should you specifically do in pursuance of the third, the open-ended strategy? A lot of miscellaneous pieces of advice can be added up to a scrappy strategy, as we have said. We think that make sense but one of the prices to be paid for the benefits of the third strategy is that the eyes have to be kept open.

Do users deserve better?

The advice that follows applies, in general, to new systems you may be implementing and to systems you may be having to revamp anyway. It is not, in the present state of communications standards, advisable to rewrite systems solely in order to convert their communications to standard any user implementation of them will be in perhaps five years time.

So, what should you do in practice? You may like to note that a statement that a product "conforms to the ISO seven-layer model" is worthless. The seven-layer model is a framework for standards, many of them still to be defined, not a standard in itself.

At the lower levels of detail of the ISO model (levels one to three or four), some stability of standards is in sight. At the higher, more application-oriented levels, this is not yet so. In the latter areas, the generalised advice is to try to go with suppliers whose *de facto* standards can reasonably be expected to be adopted by at least 25% of the market.

The most stable element in forward-looking communications standards today is the low-level set of packet switching protocols known as X25. Whenever buying hardware (whether you want it to communicate or not), or communications software, it is worth asking the vendor whether what he is offering is X25 compatible.

If the answer is yes, the next questions should ascertain whether it is compatible with prevailing UK implementation of X25, how the compatibility has been tested, and whether you can see a demonstration of interworking with another manufacturer's equipment.

Satisfactory answers indicate that your possible acquisition is likely to fit into the long-term standard scene. Unsatisfactory ones put this in doubt.

The above comments also apply to X21, X21 bis, HDLC and X25 level 2.

Packet Switch-Stream, the British Telecom (BT) packet switched service otherwise known as PSS, is X25-based and provides a UK standard implementation of X25 (though quite well specified, X25 is not totally without alternatives and ambiguities).

Where you have an even moderately balanced choice, between using X25 etc. for any particular purpose and an alternative, go for X25 etc. You will almost certainly be reducing your eventual transition problem.

More generally, use the simplest communications protocol

which will serve your purposes - except where you can see what the long-term standard will be (which means only X25 etc at present). Simple protocols offer much more flexibility for future transition than complex ones.

Local area networks are at an early stage of standardisation, and any user implementation of them at present involves a gamble on its future. The odds are most favourable in the case of LANs conforming to the most recent Ethernet specification, to the IEEE 802 Draft Specification (of which one element is close to Ethernet, but the specification includes alternatives), or to ECMA TC24 standards.

Teletex is a new document transfer service which provides a standard for the exchange of the next of simple A4 documents (rather than images of documents, which is what facsimile devices handle). It should be available on many word processors and text handling devices in the near future.

In summary then, communications standards are coming and will certainly bring considerable benefits to users. These benefits will be increased if the standards come properly and soon.

In the interim, you, the user, have three possible strategies: half-closed eyes (*de facto*, as you can get away with); rose-coloured spectacles (go with a manufacturer's standard, and accept the lock-in implications or hope the transition won't be too painful); and open eyes (take what you can, what moves in the right direction, at an increasing pace as the standards scene becomes clearer).

None of these strategies is the definitive correct one - there are few absolute-musts or absolute-must-nots in this area just at present - and only you can decide which, in your circumstances, you should follow.

But we believe it is important that you should take this decision with an understanding of the points discussed, and of further developments in communications standards as they occur.

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DOWNTIME

A touch of hypocrisy?

IBM's righteous indignation at the Hitachi theft of its secrets is tempered by its readiness to make a fast buck. Company spokespersons have long decried the underhandness of the Nips in nicking its most wonderful ideas and flogging them to IBM customers.

And one of those corporate mouthpieces is now asking any users who happen to have any soft-

ware which might have fallen off the back of a lorry to get in touch immediately.

But errant users should not fear a visit from the boys in blue (the police that is), rather a visit from the boys in blue (IBM salesmen). Speaking from the US, the IBM spokesman told a stunned world:

"We're more than prepared to sell these users the manuals to go with the stolen software."

When times are hard

INDUSTRIAL relations at Plessey's Liverpool plant have never been better, according to a company spokesman at last month's interim results press conference.

Asked for further details, he pointed out that, in the past, it has been known for chairmen, managing directors *et al* to be booted along the length of the production line (one of the longest in Europe).

But chairman Sir John Clark is

apparently so beloved of his Liverpoolian subjects that he can walk among them unscathed, and can do so without bulletproof glass in his Plesseymobile.

Of course, it might not be Clark's devastating charm which has brought about this marked improvement. It could have something to do with the fact that Plessey is almost the only employer left on Merseyside.

And it really doesn't work!

OLD Charlie Babbage's dream of building a mechanical computer has finally come true: 150 years after his design for the analytical engine was shelved due to production problems. (Not at the TImex plant.)

And it comes with the remarkable price tag of £1.29. Let me quote from the catalogue:

"Clockwork Computer. No mains - no batteries! This revolutionary new miniature computer works by clockwork only. (It doesn't really work, but the moving 'data' on the wheels look very realistic.) - and the clockwork is quite incomprehensible in its design!"

All this in a package just 2in. x 1 1/2in. Order yours now.

Liveware

File

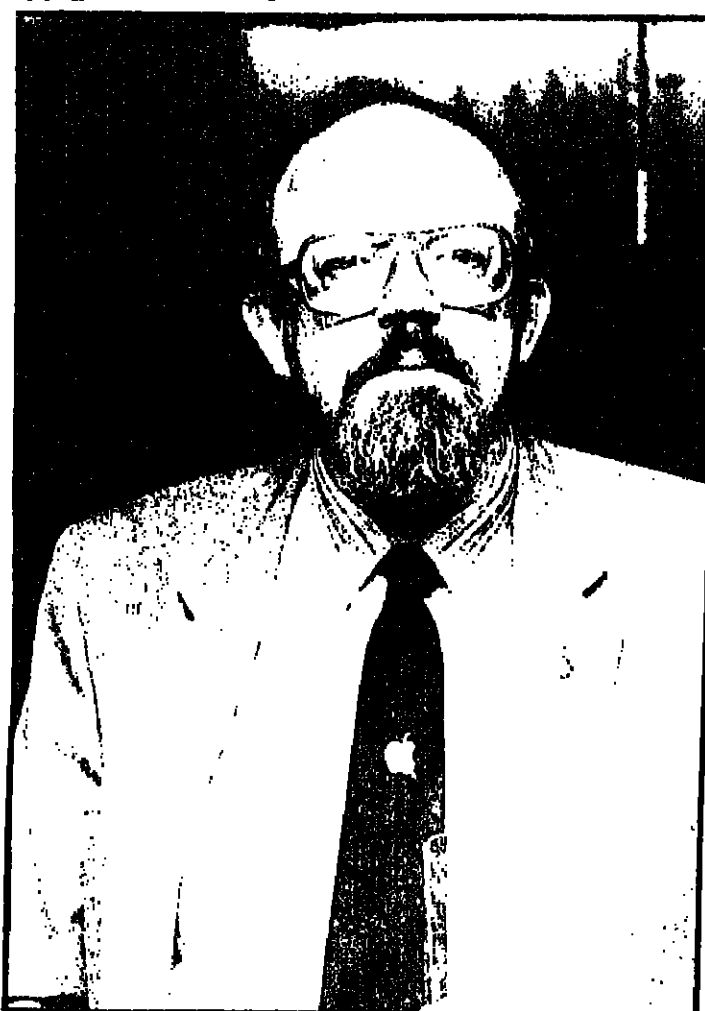
by Don

Such enthusiasm!

Such dedication!

Such prompt response to the telephone!

You can always tell when the headhunters are in town.



GOODWIN... Users of minis are the most fickle.

IBM users break magic 1,000 mark

AFTER hovering in the nervous 900s for a few years, the IBM Computer Users Association (CUA) has taken on its 1,000th member. New membership applications at the association's November meeting bring the total to 1,005.

Mainframe users are still in the majority, accounting for 577 of the individual members. But users of IBM's minis taken as a whole now make up 390 of membership, the largest single group. This includes users of the Series 1, the System 34 and the System 38.

According to IBM CUA secretary George Goodwin, users of the minis are the most fickle, and tend to come and go.

But the popularity of the 4300

mainframe series shows in the increasing number of its users among the members. There are now 365 of them, compared with just 36 old timers with the 370.

The remaining 166 members use the smaller 30X mainframe range. And there is just one user with only a Displaywriter, although this same user has IBM-compatible mainframes made by NAS.

IBM-compatible users do not qualify for membership, but they can join if they have just a single IBM Personal Computer or Displaywriter.

Goodwin says, however, that these users are unlikely to buy an IBM-PC just for the privilege of joining the club. But if they just happen to find one lying around...

When whims can speak louder than money

THE whims of programmers can be more important than price in determining which IBM CICS application development system users buy. Pilkington went for Pansophic's Generol mainly because the programmers loved it, according to technical support manager Pete Rogers. "My CICS team were very happy with what they saw," he says.

Price is less of a factor, says Rogers, since there is not much difference in cost between the leading contenders.

Generol is not the only CICS application product to prove popular with users. Cincom's Mantis is the most powerful of all the CICS development systems, and was described by Mike Dorton, project manager of manufacturing company Ward & Goldstone as one of the most remarkable software products he had ever come across.

The product, he said, had had "an immediate, profound and lasting impact on all aspects of system development".

Even Pansophic's president David Eskra concedes that Mantis is a force to be reckoned with in the CICS world, and describes Cincom as the main threat to Pansophic in the market.

Oxford Software's UFO also has its admirers, and in the UK has been the most successful CICS application generator so far, capturing about a quarter of the market

and being installed at 160 sites. However, Pansophic's UK regional manager John McLaughlin claims that several UFO sites are switching to Generol.

With many big IBM installations looking to upgrade their CICS development systems, the battle is hotting up for a dominant share of the market, and the leading suppliers are all promising plenty of goodies to woo users and programmers next year.

Cincom, for example, will have release 3.7 of Mantis ready for January, and plans two releases of the product per year thereafter.

IBM itself is still the dominant supplier of CICS development systems. But its share of the market has fallen steadily from over 80% in 1979 to around half now.

And third party suppliers of CICS application generators are likely to be further encouraged by IBM's recent idea of levying an upgrade charge on users of its software. The IBM Computer Users Association is at present opposed to this move.

The biggest five suppliers of CICS application generators in the UK, apart from IBM, are Cincom, Pansophic, Cullinet, ADR and Oxford Software. In the UK, Oxford's UFO is distributed by Fee Ltd of Watford.

Oxford Software has recently added a new twist to the game by offering UFO Cobol, which helps programmers to write Ansi Cobol

programs in a CICS environment. This is an interesting move because it shows again that the leading suppliers are paying attention to what programmers want.

Not all programmers want a non-procedural applications generator, and many would rather continue to hack away with Cobol. But they still need a productivity tool, and UFO Cobol is for them, according to Oxford president Judd Shanker.

"We've taught CICS to Cobol so that you don't have to teach it to your programmers," Shanker comments.

But the CICS application product of the moment seems to be Generol, a product astutely acquired by Pansophic from the small US software house, Software Generation Technology.

Generol has got off to a flying start, with 12 sites already using it in the UK. Significantly the product has just been installed by Segas, which has the UK's biggest IBM CICS installation, with 1,500 screens, and processing 50,000 transactions a day.

Such a huge workload was proving too much for UFO to cope with, and it remains to be seen how Generol will manage.

Rogers of Pilkington says that the shortage of CICS programmers was a big factor in his choice of Generol. Pansophic says that a trainee can learn sufficient in half a day to write a simple transaction

using the product's commands, which are in a language similar to English.

Rogers says it is too early to say just how easy Generol will make programming life, but says the early signs are promising.

He points out that system development costs are now running far ahead of running costs, so an applications generator is becoming a prerequisite. This is especially true at Pilkington, where there are a lot of applications, many of which have a relatively short life.

Pilkington has just installed an IBM 3083 and has about 160 terminals on CICS. It is trying out Generol on re-writing costing applications, and on the expansion of an engineering system.

It is worth remembering that about half of the programming effort at large IBM sites goes on maintenance of existing Cobol systems, and the applications generator has to cope with this. Generol offers line by line compilation of code and immediate syntax checking.

Next year will be interesting for CICS users because IBM is likely to begin the process of unloading data processing power onto the personal computers.

Cincom has been quick to move in this area, and plans to allow customers to test a subset of Mantis called Cricket running on IBM's new XT/370 PC in the spring.

Get information on information

ABERDEEN University has been given £135,000 by the Science and Engineering Research Council (SERC) for research on intelligent knowledge-based systems.

The money will be spent over the next three years, and the project will attack the problem of getting information from databases.

The team at the university's computing department will build a system which understands and gives information about data held at remote databases.

Says Dr Peter Gray, the project head: "It's all very well for experts

to use their own databases because they know and understand how the information is stored. Other databases elsewhere are not so accessible because they have unwritten assumptions in their structure."

A user who does not know how data was collected or what sort of information a database contains will have to ask questions about the data as a preliminary. For example, an unfamiliar user would need to ask where a particular type of information was stored on the database before being able to find

things out from that data. Information of this kind, that is information about the database rather than the information itself, is called metadata.

The aim of the Aberdeen project is to build a prototype "metadata advisor" to answer queries which an unfamiliar user has about a database.

Gray hopes in the longer term to build expert systems, and an initial study is being made in association with the College of Agriculture into the possibility of setting up a horticultural advisory service.



GRAY... 'Unwritten assumptions'.

Computer Technology doubles commission

TO avoid clashes between its own sales force and sales through its systems houses, Hemel Hempstead-based minicomputer manufacturer Computer Technology Limited (CTL) is to start paying double commission.

The company, which sells 32-bit minicomputers in the £25,000-£400,000 bracket, works extensively through systems houses, particularly for first-time buyers.

"Our salesmen only sell to second-time users, so when they come across first-time users they have to give to leads to a systems house," explained Bob Finch, CTL's managing director. "When that happens, both parties get the 1% commission."

That policy seems to have paid off, as CTL is leap-frogging the problems bedevilling the minicomputer industry. Announcing half

year figures last week, Finch revealed that turnover was 30% up on the equivalent period last year, which, in turn was 50% up at £7 million on the previous year.

"We haven't been affected by the economic climate at all," said Finch, "and we are very pleased with CTL's progress in a tough market, although we are not complacent."

This year, CTL has boosted its manufacturing plant at Hemel Hempstead to 25,000 square metres, and launched its 32-bit 9000 series of Momentum minicomputers, aimed at the transaction processing market.

However, although CTL launched its first minicomputer in 1968, it currently has only about a 2% share of the UK minicomputer market, according to Finch.

Last December, the company launched its Marketline scheme to

sign up systems houses. So far three have signed up - System Solve, Leasco and Fraser Williams - and another 12 are in the early stages of a Marketline agreement.

CTL sells generally across industry and also specialises in providing turnkey pathology laboratory systems, and currently supplies most of the satellite checkout systems for European Space Agency satellites.

The company will supply the checkout system for the European Space Agency's Giotto satellite which will plot Halley's Comet in March 1986.

CTL's medical systems "did not have as many orders as expected", says Finch, and he attributes that to a slowing down in orders by the National Health Service rather than losses to competitors.

Along with Office Technology and Network Technology, CTL is

a subsidiary of the Information Technology Group, which includes former ICL supremo, Lord Cross, on its board. Iann Brown, managing director of Iannos, was until about two years ago CTL's board.

The difference between CTL's failsafe system and other failsafe systems is, according to Finch, that CTL "sets out to achieve data base resilience".

CTL's Momentum marketing manager, Tony Smith explained: "Other nonstop systems have parallel processors operating synchronously, with checkpoints along the way. That causes problems."

The responsibility for putting the checkpoints in the program is left to programmers, who vary in competence, and unless done properly, that can affect the overall performance of the machine.

PUZZLER

IN this week's alphabetic, W is twice as big as V (as you might expect from the size of the two letters). See page 63 for the unique solution to this addition sum.

FIVE
TWO
ONE

EIGHT

PEOPLE

Instem Computer Systems has appointed Tony Bonser as Northern sales engineer. He moves into sales after working in Instem's systems engineering and product support department for the past seven years.

As part of its plans to expand in Ireland, Kerridge Computer Company (Ireland) has appointed Bob Sinnott as general manager with responsibility for all 32 counties. Born in Cork, Sinnott was formerly based in Birmingham as a major account manager for Sperry.

Euro Electronic Instruments announced the appointment of Stuart Halsey as external sales engineer. He was previously with GEC Computers at Borehamwood as an electronic engineer.

A. G. Andrews, vice-president of Dennison International, has been elected president of the Business Equipment Trade Association. This will be his second term of office, having previously served as president in 1977/78.

Gerry Flaher, who has been computer services controller of Associated British Foods for the past 15 years, and president of the British Computer Society 1966-67, has left ABF. He is currently discussing various opportunities, but says he may return to Scotland in an independent role.

Chris Ringrow, an authority in digital communications, has joined electronics consultant Cooke Associates at the design offices in Brighton. He has completed two years as a research fellow with the European Space Operations Centre in Germany, where he was concerned with advanced digital networks including satellite links. Previously he conducted postgraduate research in microprocessor test equipment.



ICE (Independent Computer Engineering) has made several internal promotions. Paul Griffin (left, who joined ICE from Visa (where he was financial manager), has been promoted to financial controller. Paul Smith (second left)



Harry Scott (left) has been appointed general manager of Hamilton Rentals, and Martin Bramley is named as finance director. Scott has been with Hamilton for five years, most recently as commercial manager, with special responsibility for sales and marketing. Bramley joins the board of North London-based Hamilton from Hamilton Rentals in France, where he has been finance director for the past four years.



Microdata managing director, Jerry Causley (above), is to become European president of the company. A European office will be set up at Microdata's UK headquarters at Hemel Hempstead.



previously software manager of Valasak, has been appointed development manager. Julian Moore (second right), has been promoted to international sales manager. Paul Duane (right), has been appointed operations manager.

Sales chief dies on holiday

JOHN BOWDEN, sales manager at Research Machines for the past five years, has died suddenly while on holiday in the United States. He was 45, and leaves a wife, Joan, and son, Stephen.

Arthur Young McClelland Moores & Co, chartered accountants, has appointed Hamish K. Guthrie as its first computer audit partner in the field of accountancy in Scotland. He joined the firm in 1973, and in London managed the computer audit department assisting major clients including public authorities as well as oil, food and engineering companies.



Eddie Storey has been appointed national accounts director of Fidelity, after two-and-a-half years with the company as general sales manager. He was sales director of Ingersoll Electronics for several years before joining Fidelity.



Dataproducts has appointed Frank Rouse as OEM sales executive for major accounts. Prior to joining Dataproducts a year ago he was with ICL for 14 years.

Bowden, who lived at Cholsay, Oxfordshire, first became involved with Research Machines through representing Vero, which supplies the company with electronic equipment.

Neil Kempson has joined Vikingshaw, the Kent-based computer site preparation and building services group, as technical sales engineer, with primary responsibility for the small works department.

Charles H. Dickinson has been appointed director of sales at McCuquodale Machine Systems.

Christine Casten (left) who recently arrived in the UK from Wang Laboratories in Lowell, has been appointed Wang UK's national marketing planning manager. She is also responsible for the marketing group involved in business planning. Casten has been with Wang Laboratories for the last seven years. Chris Gascoigne, who has been with Wang UK for the last five years, has been appointed Wang UK national marketing manager. He will be responsible for the development of marketing programmes and marketing communications, including public relations and sales promotions.



At its annual meeting, the Peripheral Suppliers' Association elected as chairman Ken Heather (above) of Pragma, a company he formed in 1971 with two colleagues. All three had previously worked together for the company which is now Mannesmann Tally. The association also elected Tom Datzell of Sintrom Electronics vice-chairman, James Crook of Data Design Techniques treasurer, and members of the council are Bob Britten, W. Boffin (Ambiron), B. Fadil (Data Dynamics), D. Holland (Digi Data), D. Lyon (Peripheral Hardware).

The Computer Trade Show '84

"Where the professionals meet"

Wembley Conference Centre March 13-15
Open 09.30-17.00 daily

If you want to talk to buyers then The Computer Trade Show '84 is the certain way of reaching an audience of the highest quality. Only bona fide trade visitors are admitted to the show and at the last exhibition 3,653 trade buyers came to The Computer Trade Show. Such people are serious business buyers, with 41 per cent of 1983 visitors involved in computer/WP systems distribution and 25 per cent looking for OEM equipment for systems integration.

This impressive audience attends The Computer Trade Show '84 because of the guaranteed quality of the show. Held near the centre of London at the modern Wembley Conference Centre with its sophisticated businesslike atmosphere, it is staged by the country's largest exhibition organiser, Reed Exhibitions. Sponsors of the show are Computer Weekly, 'Systems International', 'Software', 'Practical Computing' and 'Micro Business'.

A prestigious conference programme held in conjunction with the show is certain to attract wide media coverage and professional visitors of a high calibre. With important industry issues discussed in depth, the conference will be the talking point of the year in the trade. For further information contact Christine Jones, Tel. 01-643 8040.

With this kind of backing it is no wonder that an important number of computer companies, like Digital Equipment Company, Perkin Elmer, Kodak, Norsk Data, General Automation, Rediffusion, Geveke, Newbury Data and Multicomputer, have already booked stand and space at the show. So if you want to be sure of meeting thousands of business buyers with bulk purchase at the forefront of their minds you must reserve your stand space at The Computer Trade Show '84 by clipping the coupon below, or better still phone Gillian Johnson on 01-661 3125 NOW!

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UK repair service is set up to by-pass US

THE problem facing many disc manufacturers and distributors of sending faulty devices back to the US has led to the setting up of an independent UK company, Memory Maintenance.

"It is a solution to a problem," said managing director John May. "None of the companies we have resigned agreements with have a repair service in the UK and only one has a European-based service."

The rest all have to be sent back to the US.

Winchester discs need to be repaired in a class 100 clean room and according to May this costs between £70,000 and £80,000 to build. Most disc distributors do not have the volume of repairs to justify the investment, he said. US disc-makers are starting to set up their own UK repair operations - for example, Tandon has done so

in Reading - but generally speedy Winchester repairs depend on third parties.

"On average it takes 8-10 weeks to send a disc back to the US for repair," said May. "Memory can do the repair within five to 10 days from receiving the disc."

"This means that distributors and dealers do not have to have so many discs on standby. They also do not need to have as much

money tied up in stock."

However, Memory does not intend to restrict its service to Winchester but will also repair floppy and microfloppy discs.

So far Memory has signed agreements with Bull's peripheral operation, Atasi Microscience, Veritas and Tabor.

Based in Swindon, Memory has

built a 350 square foot clean room capable of dealing with 6,000 Winchester discs per year, but with the ability to expand easily. It aims to repair at least 2,000 in 1984.

Investment so far comes from Memory's two directors, John May and Clive Markley, and a government guaranteed bank loan totalling £15,000.

Workplace is compiled by Philip Hunter

SOFTWARE MONTH

The original aims of computer-aided design and manufacture have been realised. Now there is a move to give engineering staff access to an entire range of CAD/CAM capabilities. . . Software Month traces the industry's growth

How CAD/CAM is taking over on the factory floor

JUST as manufacturers have come to realise that word processing is only a part, albeit an important part, of the overall concept of the automated office, so are they now realising that CAD/CAM is but a part of the automated factory.

Indeed, some manufacturers are now taking the concept further by claiming that the automated manufacturing process includes both the automated office and the automated factory.

The move towards this new integrated approach started in the early 1960s with computerised numerical control machines.

Dennis Papworth, Data General senior marketing specialist for CAD/CAM and industrial automation, explained the development.

"In those days," he said, "automation consisted of a lathe that might have a punch tape controller. A programmer would write a system to control the lathe — a method that, in modern terms, was arduous, difficult, lengthy and expensive. The breakthrough came with the arrival of minicomputers at a much lower cost than the traditional mainframe."

"With high level languages like Fortran it became easier for companies to automate the manufacturing environment — process control, machinery control, and so

on. At this stage the two leading lights in the minicomputer world were DEC and Data General.

"From then on," he continued, "we have seen a steady process of evolution. More and better software is becoming available on cheaper machines. Where only the British Aerospace and ICIs of the world could afford the £1 million-plus necessary for mainframe CAD/CAM (and still do, of course), now even the smaller company can afford CAD/CAM on £10,000 micros.

"We see two basic markets: high value, low volume (as in a blade within a turbo jet engine); and low value, high volume (as in shirt buttons and spark plugs).

Data General can tackle any job, from the widget to the aircraft manufacturer.

Papworth was brought to Data General to ensure that this capability is turned into actuality.

He has established a programme of working with ISVs (independent software vendors) and IHVs (independent hardware vendors) to put his company and third party hardware together with third party software to create Data General's "factory of the future".

To aid this, all the standard CAD/CAM software is already available: McAuto, Anvil 4000, Pafec, Gino-F and so on.

Where only the British Aerospace and ICIs of the world could afford the £1 million-plus necessary for mainframe CAD/CAM (and still do, of course) now even the smaller company can afford CAD/CAM on £10,000 micros

"Data General's philosophy," he concluded, "is to enable users to have multi-functionality on one machine: for example, data collection from the factory floor, CAD terminals used by designers and engineers, administrative workstations for word processing, stock control for the production engineers — all of this can be and is handled by the Data General MV10000."

However, despite Papworth's enthusiasm, it was evident he was holding back on information. He admitted that he had been employed to "ge up industrial automation marketing", and he claimed Data General would "substantially increase its market penetration during 1984", but was unable or unwilling to say more.

Time will tell just how important his new developments actually are.

In the meantime, other manufacturers are equally active, and are beginning to pursue the auto-

matized factory concept.

A few weeks ago James Borret, president and chief executive of market leader Computervision, visited the UK to explain his company's recent moves in the market.

"During the past several months," he announced, "we have made a number of agreements, associations and acquisitions, including that of Cambridge Interactive Systems from your country and Grado of West Germany, as well as the Organisation for Industrial Research from Massachusetts."

"We have also signed an important technology-sharing agreement with Sun Microsystems of California," and last, but not least, "a major contract with IBM."

He went on to explain the significance of these acquisitions. And the picture he drew was one of a growing realisation that CAD/CAM, Computervision's own speciality, can no longer be viewed in isolation from the rest of the factory.

"CAD/CAM systems," he explained, "were originally conceived to make the engineer's job easier... that vision has been realised."

Now, he continued, "our customers have told us that they want to give their entire engineering staff access to an extended range of CAD/CAM-related capabilities. For example (the engineer) may want access from his terminal, through a communications network, to manufacturing cost data so that he can select the most cost-effective part or material for a particular job. Or he might want to use some office automation capabilities such as word processing to prepare specifications or reports on his work."

"In many cases, his activities will generate conceptual design information which will be used at a later stage in the product design and manufacturing process. For example, an electronics engineer might use his engineering workstation to complete a logic design, then pass that information through a communications network to a CDS 4000 system where the printed circuit board layout will be completed."

Hence the agreements and acquisitions with Sun Microsystems for the networking

capabilities; and CIS and Grado to produce new software for the new concept.

And to bind it all together into the automated factory is IBM. "By integrating selected IBM hardware and software into a complete Computervision systems solution, we will be able to provide not only the capability to create new engineering and manufacturing in-

formation, but to manage and control that information as well."

Chasing the same concept, but from a different starting point, is Hewlett-Packard. HP already has the necessary hardware and communications capabilities. "Now," explained Mathew Wallis, third party marketing manager, "HP is actively seeking the best of the market's CAD/CAM software to go on to our MPN."

MPN, it must be explained, is the HP Manufacturer's Productivity Network, a vast and ambitious project that aims to integrate four separate manufacturing areas of administration, CAE, factory and plant automation, and operational planning and control systems.

"To achieve this," continued Wallis, "we need a networking approach where different users can share common peripherals, like plotters and large discs. We've chosen an Ethernet network,

which is working now, but are slowly working towards the ISO recognised IEEE 802.3 standard. This is an Ethernet compatible baseband standard that should be available by the end of 1984."

At the heart of this new approach is the proprietary Focus 2-bit chip. This has enabled HP to develop its primary CAD/CAM workstation, the HP9000; in

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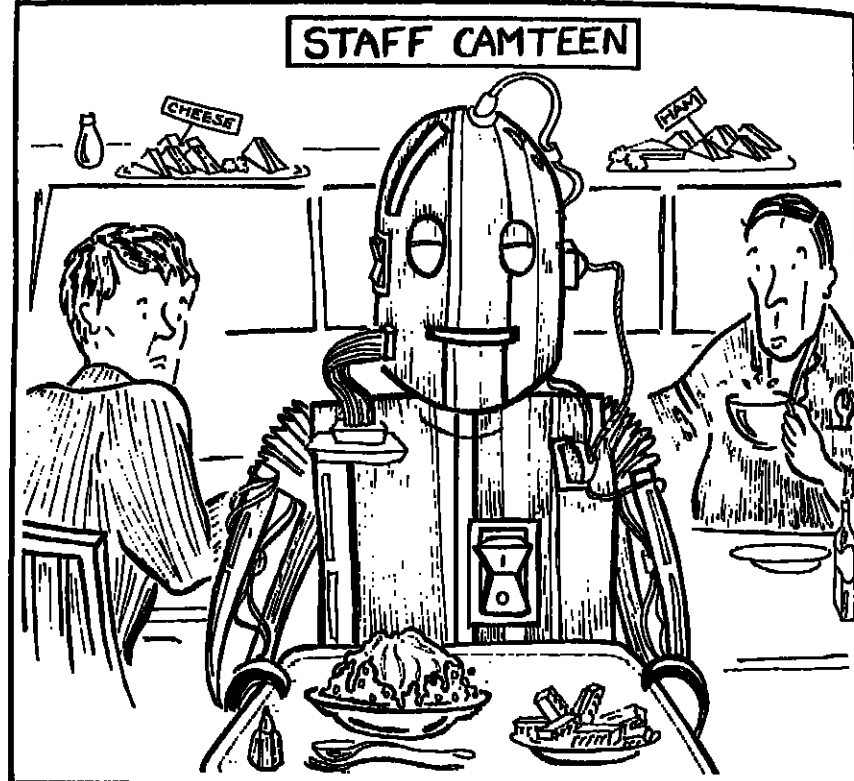
"In many cases, his activities will generate conceptual design information which will be used at a later stage in the product design and manufacturing process. For example, an electronics engineer might use his engineering workstation to complete a logic design, then pass that information through a communications network to a CDS 4000 system where the printed circuit board layout will be completed."

Hence the agreements and acquisitions with Sun Microsystems for the networking

capabilities; and CIS and Grado to produce new software for the new concept.

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SOFTWARE MONTH

New ideas come off drawing board

An analysis of trends in CAD/CAM shows that integration is just beginning

CAD/CAM is clearly one of the most dynamic growth areas in the computing industry. But it is surprising how the different manufacturers and software suppliers see the trends moving in different directions.

CAD/CAM seems to be moving towards networks, towards micros, towards host systems and towards turnkey systems depending solely on the products of the supplier concerned.

Two things that are certain are that the industry is largely software driven, and that integration

duct description is generated by the design engineer — he needs a system that allows him to design creatively and interactively. Systems such as Romulus 2 provide just this capability.

"Last year," he went on, "a machine component was produced on a CNC milling machine directly from Romulus data via the GNC system (a CADCentre product used by permission of Counting House). Not a single physical drawing was created or used during the entire process."

Pafec is one of the recognised software leaders in the CAD/CAM area, with its Pafec, Dogs, Boxer and Pigs packages. Ian McKenzie, Pafec CAD manager, told us that he is "about to announce new products in the areas of computer-aided numerical control and three-dimensional wire frame modelling. Later next year we shall also be releasing products specifically tailored for the architectural and reinforced concrete design areas."

In the meantime, McKenzie feels that CAD/CAM buyers do not always make sufficient demands on the would-be supplier. "Most companies," he explained, "still present the CAD/CAM supplier with a checklist — and are satisfied if he is merely able to tick off an item such as finite element analysis."

"It isn't always realised that this is an extremely complex subject. Just because the salesman claims his product can do it, doesn't mean it can support or is even properly interfaced to the draughting and design functions."

"It is only slowly that the buyers are beginning to appreciate the full complexities in CAD/CAM re-

CAD/CAM software rank us as the number two supplier for CAD/CAM systems in the world — but if you add to this the number of DEC computer components included in turnkey systems, we are undoubtedly the clear market leader."

Digital Equipment has never considered itself a major applications software supplier, preferring instead to enter joint marketing agreements with the leading third party specialists. "But," said Grindley, "DEC will continue to produce the generic tools that aid integration and where appropriate, we will market relevant application software. In short, Digital Equipment will provide the environment for systems builders to design inte-

grated CAD/CAM systems.

"The pressing priority for all CAD/CAM users must be the integration of CAD/CAM with the rest of the manufacturing process. The benefits from this are likely to yield savings that far outweigh the gains that can be achieved by automating any of the functions individually."

Ferranti Cetera is one of the companies with which Digital has a marketing agreement. Keith Nichols, product marketing manager, feels that theory is far outstripping practice.

"The CAD/CAM marketplace," he explained, "is being driven by the market analysts who are setting expectations far in advance of current technology. For example, we

have recently seen the CAD/CAM concept being taken rapidly through CAE (computer aided engineering) and on towards CIM (computer integrated manufacturing), which provides a framework for product design right through to factory automation."

Nichols does not deny the desirability of these concepts, or even

that they will eventually come, but he feels that in their desire to keep pace with these market expectations, some vendors have attempted to expand their system capabilities at the expense of diluting their support services."

Finally, we must give some

NADIN . . . "Looking to develop further growth areas."

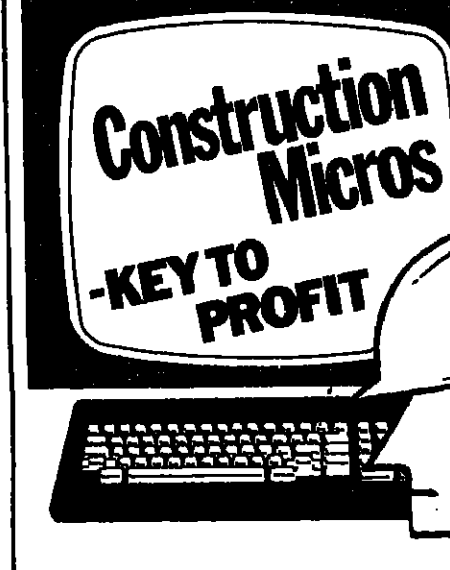
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Continued on page 24



A practical conference introducing computer benefits to construction managers

Wednesday, 8th February, 1984

Regent Crest Hotel, Carburton St, London W1P 8EE

Organised by CONTRACT JOURNAL
In association with the Construction Industry Computing Association.

The micro revolution brings the benefits of computers to the small contractor as well as the large, to the project manager as well as the office accountant. But what system to buy? How best to use it?

Find out the answers to these and a range of related questions at a practical conference expertly structured by Contract Journal in association with the Construction Industry Computing Association. Top experts from the world of construction and the field of computers — plus an exciting range of hardware systems and software packages from leading manufacturers — will combine to give delegates a working introduction to the use of micro computers in construction. Conference sessions will be supported by a working display at which key speakers will staff a Computer Clinic, allowing delegates to seek advice and guidance about which system to buy, and the software packages to put with it. The day promises to be of real practical value to construction managers and directors — a day to build your confidence in computers.

Contract Journal CICA

The fee £95 plus 15% VAT (£14.25) includes attendance and the conference, documentation, refreshments and lunch.

A 10% discount will be allowed for bookings received by December 1, 1983, and CICA members.

Registration Form
To: Conference Administrator, Reed Conferences, Room 1313, Surrey House, Throby Way, Sutton, Surrey SM1 4QQ. Tel: 01-643 8040. Ext 4882.

Please reserve . . . place(s) at the Construction Micros . . . Key to profit conference. Enclosed is a cheque for £ . . . A VAT invoice will be sent.

Name . . . Position . . . Company . . . Address . . . Tel No. . .

CONSTRUCTION MICROS
09.45 Registration and coffee
Chairman (morning session) Alex Catto, editor Contract Journal

Session one: Getting Programme
09.30 Choosing the right system — assessing your micro requirements, evaluation of benefits versus price, custom or standard package software, selecting your up grade path, links with other computers, last and least — the hardware.

10.00 Russell Nathan, managing director, RomTec.
Who uses micro for what in construction.

10.30 Rob Howard, CICA
Coffee

Session two: Putting Micros to Work in the Office
10.50 What financial modelling can do to make cost control more effective.

John Sellers, data processing consultant, Paul Marwick Management Consultants.

11.10 Integrated accounting systems — what they are, some advantages and disadvantages and alternatives. Ken King, Manager — accounting systems development project, Wimpey Group Services Ltd.

11.30 Software accounting packages designed for the smaller contractor. Brenda Wiles, Solicitor Polytechnic Computing and Statistics, Leicester Polytechnic.

11.50 What computers can do for estimating. Denis Weger, CICA consultant.

12.10 Questions on the morning session.

12.30 Lunch. Guest speaker — Chris Higwell, publishing director of Practical Computing and Your Computer and Computer Choice magazines, will give delegates an appreciation of micro computers.

Chairman (afternoon session) Rob Howard, CICA
Session three: Putting Micros to Work on the site

14.00 What computers can do in site management. Dr Martin Barnes, director, Project Software Ltd.

14.20 Planning the contract. Glynn Nixon, Director, Micro Planning Software.

14.40 Software systems for valuations. Brian Fines, consultant, Fine, Curtis and Gross.

15.00 Questions on afternoon session

Session four: Computer Clinic
15.20 Conference speakers will be on hand to answer problems or give independent advice as delegates get "hands-on" experience with the many hardware and software systems on display from leading manufacturers in the exhibition area.



HERRET . . . Growing realisation that CAD/CAM can no longer be viewed in isolation.

Total of manufacturers and suppliers doubles in year

Software Month looks at the current catalogues and conducts a survey of the CAD/CAM software on offer

WHEREVER there is a software market, there is a software catalogue; and this is as relevant in the field of CAD/CAM and scientific software as anywhere else. So we decided to look at some of the available catalogues, and to conduct our own survey (by circulating about 100 of the leading CAD/CAM suppliers).

The results of both are shown below, though the list is not meant to be exhaustive.

The number of manufacturers and suppliers has grown from 700 to 1,500 during the past year — a 114% increase.

As heft is a company that is sometimes claimed to be the world's second largest publisher, as well as the world's second largest computer manufacturer, Digital Equipment has several catalogues.

Of most use in this area is the Manufacturing Application Catalogue, a directory "designed to help Digital Equipment's customers quickly locate available software, hardware and expertise suitable for manufacturing".

This catalogue includes the business side of the manufacturing process, and lists office automation and sales analysis software as well as the more specific CAD/CAM elements. Nevertheless, it provides details on some 50 relevant packages for systems ranging from the personal computers through PDPs and Vaxes to IBS and 20s.

Also worth looking at are the new DEC Classified Software Catalogues that became available

IBM has two catalogues: one is of some value and the other should be but isn't

in October. While over 30 CAD packages are detailed (mainly for the larger systems), it appears DEC is fairly deficient in the CAM area. Nothing for either area is listed for the PCs.

ICL is another company with a new software catalogue. There is no specific CAD/CAM section, but under the general heading of "Science, Research", ICL lists 28 different packages for systems ranging from the CRIM personal computer through the scientific Perq to the 2900 range.

IBM has two catalogues: one is of some value and the other should be, but isn't. Volume III (Applications) has a section with the general title of "Scientific and Graphics". This includes details of 34 different software packages, but does not separate pure CAD/CAM systems (such as the Computer Graphics Augmented Design and Manufacturing System) from analytical packages (such as the APL Multivariate Time Series Analysis package).

The second catalogue, the Catalogue of Application Programs Available from Non-IBM Sources, displays an absolute dearth of third party software: there are no sections relating to anything resembling CAD or CAM or Scientific.

A third party product catalogue will be published by Computing Publications as two directories in May 1984. These are the Directory of Computer Graphics and CAD/CAM, and the Industrial Automation Directory.

The CAD/CAM directories started life as the Directory of

Computer Graphics, CAD and CAD/CAM published by Interco Business Consultants. When it moved to Computer Publications David Mankin moved with it. He provided the information shown in Table 1 to illustrate the growth of the CAD/CAM markets.

The current figures are the latest running totals and may well change before the directories are actually published next spring. The total figure, incidentally, for CAD/CAM products available in Europe, stands at a colossal 3,360.

SURVEY OF CURRENT CAD/CAM SOFTWARE

Applied Research of Cambridge, Wellington House, East Road, Cambridge CB1 1BH. GDS has 97 users, and is a 2-D general purpose drafting system with 3-D

Counting House, Counting House Computer Systems, Farnham House, Farnham St Martin, Bury St Edmunds, Suffolk IP31 1SR. GNC Plus (130 users), is a graphical NC part programming system which may be interfaced to CAD systems. Facilities complete graphical simulation of most NC/CNC machining operations, 2 and 3D, including turning, milling and drilling. Licensed and supported by Counting House Computer Systems on Prime computers. Also available through Camline network. GDS (100 users) is a 2½D general drafting system marketed by Counting House to mechanical engineers. Optional interfaces to 3D solid modelling design systems, to GNC Plus, and to Material Control suite. IBS (20 users) is a range of core software

engineers to automate the design and manufacturing process. Pattern-G is a general purpose, interactive graphics pre- and post-processor for the construction, display and editing of 3-D finite element models. Numbers of users for these three packages are not available.

Jeansh Services, Nordley, Bridgforth, WV16 4SU. Digitmaster (31 users) is a 2D draughting package capable of creating, merging and originating, predefined sub-units so that they may be used for rapid build-up of composite drawings. The system has a powerful and extensive dimensioning facility which enables it to be successfully used for professional construction of mechanical as well as schematic drawings.

McAuto (UK), McDonnell

with features such as parametric symbols, properties (a non-graphical database), and an archive for merging drawings and drawing management. Pafec/Pigs (196 users) is a comprehensive finite element system, giving 3-D linear and non-linear analysis. Data preparation is perhaps the simplest of all such finite element codes, as it employs free format input using engineering key words. It includes mesh generation facilities, data validation, and interactive graphics among a total of more than 80 elements that include large deflection, modes and frequencies, dynamic response, creep, plasticity, heat transfer, cyclic symmetry, boundary integral equation, substructures and hydro-dynamics. Boxer (22 users), is a 3-D solids modelling system. The user in-

ment System. This a 3-D process plant design system featuring part libraries, logical connectivity, alignment, parts listing, bidia line removal and piping isometrics. EDMS, Electronic Design Management System, is an integrated relational database system for the design of integrated circuits and printed circuit layouts. Loga is a computer aided process planning system that builds engineering databases, defines logic programs, and applies logic, use standards and work analysis methods. It generates detailed manufacturing instructions, estimates, and output for CAM systems. Numbers of users for these packages are not available.

Shape Data, 2 All Saint's Parage, Cumbria CB2 3LS. Romulus 2 (55 users) is a system for mechanical and industrial design. It is based on a solid geometric modeller, and enables the designer to create 3-D components interactively.

Tangram Computer Aided Engineering, 5 Siddley Way, Royal Oak Industrial Estate, Daventry, Northants NN11 5PA. Swift (6 users) is a general purpose interactive design and draughting system in which users can define their own menus. It provides extensive geometry modification and manipulation facilities to minimise redraws and maximise productivity. PS2000 (6 users), is a general purpose part programming system that allows interactive geometry definition, database description, interactive machine sequence definition and cutter location verification. It can be used for most modern machine processes, such as milling, drilling, turning and nibbling. MIT (4 users) stands for Machine Interface Terminal. It is not strictly a software package, but does allow CAD/CAM and production control software to be linked directly with manufacturing. It also monitors the performance of machines, jobs and operators so that up-to-date information from manufacture becomes available to all departments in the company.

Terminal Display Systems, Philips Road, Whitebark Industrial Estate, Blackburn, Lancs BB1 5TH. Wand (60+ users in UK) is an interactive software package specifically designed to support the entire range of Megatek Wizard 1600, 6200 and 7200 series graphic displays. Template (5 users in UK) is a Megatek device independent software package for CAD graphics applications.

Wootton Jeffreys & Partners, Cemetery Pales, Brookwood, Woking, Surrey, GU24 0BL. DDS is a fully interactive word processing and 2D drawing capabilities. It is designed to minimise the work and time involved in the production of documents and drawings which combine textual matter with drawings.

	Total Products 1982	Total Products 1983	% Increase
Business graphics	160	350	118
Graphics peripherals	640	1000	56
CAD/CAM software	700	1200	71
CAD/CAM turnkeys	65	165	153
Total CAD/CAM	765	1365	78
Total market	1565	2710	73

Table 1

How to control a world you can't always predict.

Cullinet's integrated manufacturing software.

Cullinet has a software system that provides manufacturers with the one thing they could use more of: control.

A Cullinet Manufacturing Software System consists of eight applications from Master Production Scheduling to Shop Floor Control. They can be purchased separately or as a completely integrated system.

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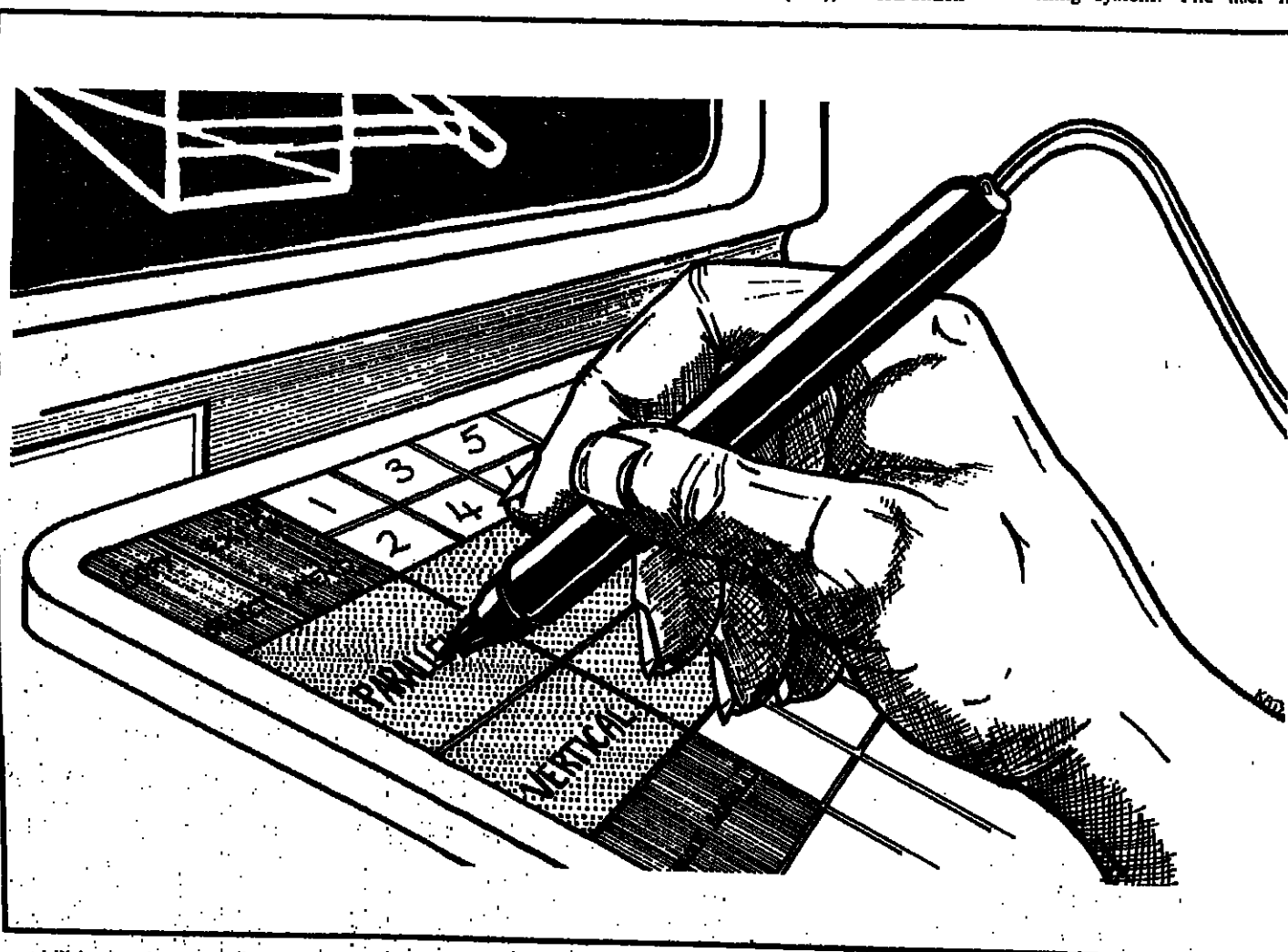
concern can be accounted for. And, once accounted for, controlled.

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Mail is partner in an electronic marriage

David Ferris argues that micros are likely to enhance electronic mail's appeal

AN interesting marriage is taking place: electronic mail and personal computers are turning out to be well matched.

On the one hand, electronic mail has been growing steadily since its Arpanet inception in the mid-70s. The technology has been one of centralised minis and mainframes talking to each other, and dumb terminals.

On the other hand, personal computers have gradually become more gregarious, wanting to hook up with each other. Direct connection is often too much of a bother, and surveys of personal computer usage show micros beginning to use electronic mail for communications.

The result is a potent mix:

electronic mail with actively participating intelligent workstations.

This is a significant improvement over customary dumb terminal-based systems. Further, the communicativeness of micros is increased rapidly - "explosively" is the usual term - so we expect the marriage to give electronic mail substantial new impetus.

The reason electronic mail is attractive to micros is simple: the most common case is where a user has developed some kind of report. This could be a table of figures, such as a budget developed on a spreadsheet, or - most commonly of all - a document prepared on the user's word processor. The user wants to send this to someone electronically, to

cut down on the delays of postal delivery.

So telephone lines are used, with asynchronous software and modems. For most end-users, configuring the communications equipment and software is a nightmare, and needs professional help. And when this is done, phoning up the other micros directly loses a lot of appeal.

It turns out to be too much effort to ensure that the other machine is ready, willing, and able to receive its mail, and then actually send it.

This is where electronic mail comes into its own, mainly as a store and forward facility. It's much easier to call up your always available system, and download

the report. The rest you don't have to worry about. The software holds on to your report until the other micro is ready; then the delivery is made.

How will large organisations implement electronic mail? I think there are a variety of ways to cut the technological cake, the first being to distinguish between in-house and common carrier approaches.

In-house amounts to buying a standard package. There are quite a few viable sources here. Among my company's clients, ADR's E-Mail and BL Systems' Comet are leading contenders. There is a wide choice available to suit most hardware appetites, from IBM's Profs system for mainframes,

down to local area network implementations such as that available from Zynar.

We suspect many companies will end up with hybrid implementations, with multiple different electronic mail systems in use. Where possible, in-house voice and data communications networks will be used instead of public networks.

Those that can't afford, or don't wish to implement in-house systems can turn to public offerings. The two main UK services are Telecom Gold, and BL Systems' service bureau version of Comet.

Large companies can find in-house systems attractive for cost reasons, but they still should not ignore public electronic mail. After all, corporate staff don't just communicate with colleagues, they also communicate with outsiders. In many companies personal computer users will end up with two accounts: one on the in-house system, and one on a common carrier.

My company's own system illustrates the advantages and problems fairly well.

We have been testing it for the transfer of reports between our geographically distant staff, especially between San Francisco and London. For electronic mail, we use Dialcom in the US, and Telecom Gold in the UK. These two are particularly attractive to us, because they are both participants in a worldwide network of Dialcom-based systems which is gradually being built.

To minimise compatibility problems, which are legion, we use the same brand of micro at both ends, in our case the IBM PC.

Hooking into the system usually needs a phone call via a packet switched network. In the US we use Tymnet, and in the UK, PSS.

So suppose a document has been



David Ferris is managing director of Ferris, which provides personal computing services to the in-house computer professionals of large organisations. Based in London, its offerings include training and help reports on word processing and electronic mail.

prepared in London using a word processing package on the IBM PC. It then typically takes about 10 minutes of clerical time to transfer the document to Telecom Gold. In a short time - around five to 10 minutes - this is then automatically transferred to the correct Dialcom processor in the US, after which San Francisco staff can pick it up at their convenience.

Again, downloading typically takes about 10 minutes of clerical time. The whole procedure is obviously much quicker than fat mail. It's also cheaper.

So what is the outlook for the DP department? To think electronic mail is likely to catch on among a lot of corporate personal computer users, but they will need a lot of hand-holding. This is most naturally provided by corporate computer professionals, the data processing department in particular.

For example, setting up and maintaining our configuration required getting the right aspid package parameters set, converting document files into a form capable of asynchronous transmission and then back again, learning obscure commands which alter the transmission of special word processing characters and character sequences, and handling intermittent packet network problems.

Clearly, these winds of difficulty require a lot of careful attention to detail by technical staff who understand telecommunications.

Until now, finding out about home computers was about as simple as

focusing your right eye here

and your left eye here.



Mind boggling isn't it? But now there's Computer Choice, a new monthly magazine that gives you the facts and advice you need to choose your first home computer. And when you've bought your computer it also helps you get the most out of it. The first issue is out now for 60p and includes our

special Buyer's Guide on micros under £200, a comparison of the One, Spectrum and Sord and a report on what One owners like and dislike about their computers and software. As well as an article on how to learn BASIC and reviews of all the latest games and software. Plus lots more to make choosing a computer easy. And owing one fun.

New concepts in CAD

From page 21

mention to the microcomputer market. So far, it effectively covers CAD only - but who knows in the future? Mike Bayfield, founding director of Interactive Graphics, believes there are many companies which need CAD/CAM facilities but cannot afford the large systems necessary.

"Many of the current micro-based CAD applications suffer from performance limitations, since hardware that may be sufficient for business applications is not adequate for the number-crunching requirements of effective CAD work."

"At present, the market is waiting for the arrival of 32-bit micros with suitable working software, and when this happens there will be a stampede to move the proven CAD software from the powerful minis and mainframes down to the new micro systems."

"In the meantime," he continued, "Interactive Graphics is providing an interim solution with its own bit-slice processor coupled to a CPM microcomputer." This graphics processor was designed so that CAD software developed during the last 10 years or so by British Rail could be moved straight on to it without change. "Overall, it has provided mature CAD software with the required level of performance, but on a system that is compatible with the

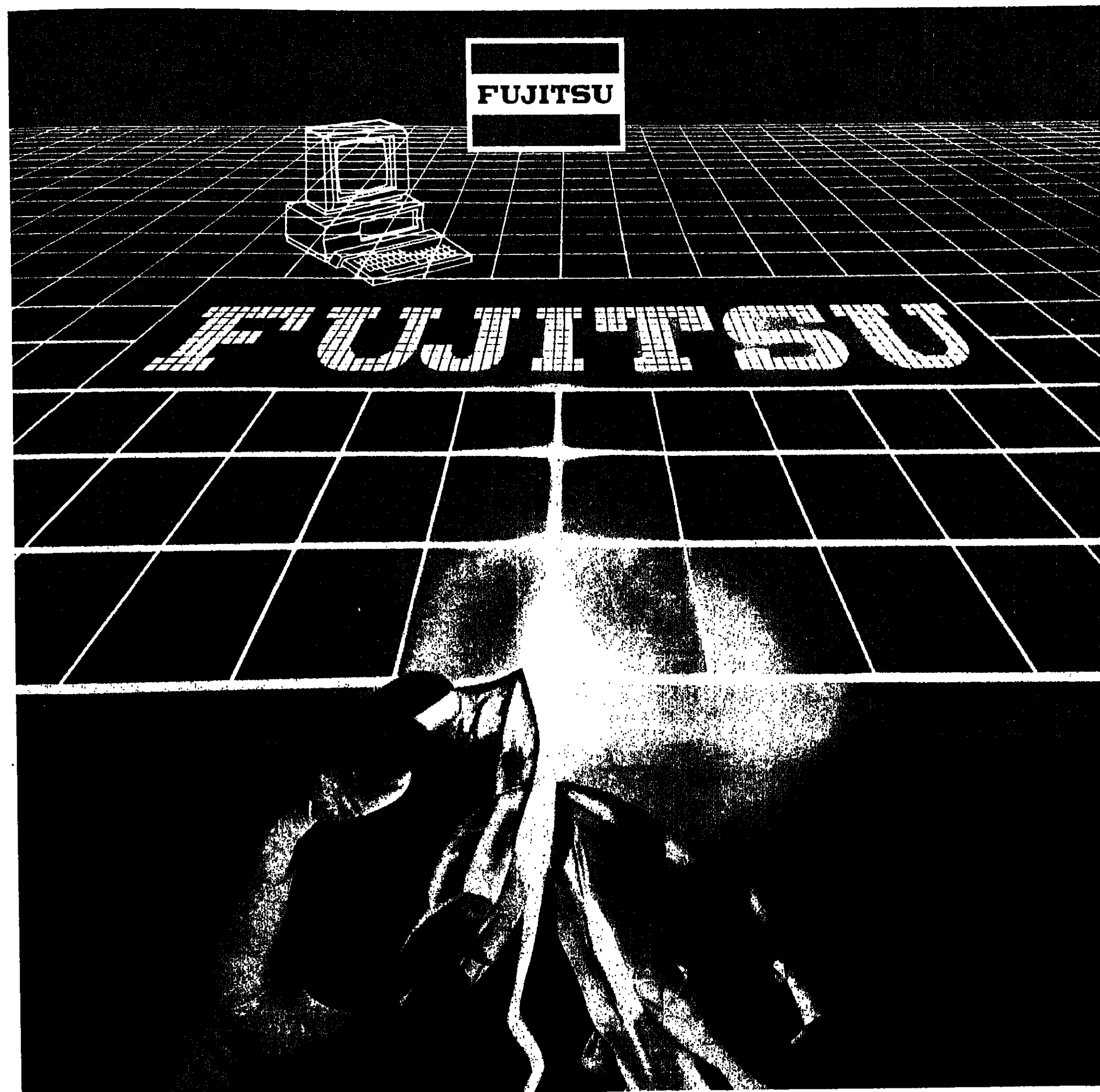
vast CP/M applications library - and all of this for a cost of less than £17,000 on a hard disc micro."

Hytech Consultants is also part of the micro market. We asked Ron Lee, managing director, if he thought that cheap micro CAD systems such as Interactive Graphics' Brightpad and his own Micro-Designer might not lead to mass unemployment among draughtsmen.

"No," he replied, "because there is already a shortage of good design draughtsmen even in today's recession. Our experience is that companies use CAD systems to improve the service offered and the quality of work rather than to cut down on the number of draughtsmen."

So we levelled the suggestion that a CAD system can only be as good as the programmer, a discipline that is surely much different from that of the draughtsman.

"This assumes that there is a reduction in the level of skill necessary to use a CAD/CAM system. It also assumes that a programmer is less of a craftsman than a design engineer. Both assumptions are wrong. A computer system is unable to provide any design input, it is simply an aid. The designer's knowledge, flair and skills are still required - but he also needs to learn the new techniques of designing with a computer for an assistant."



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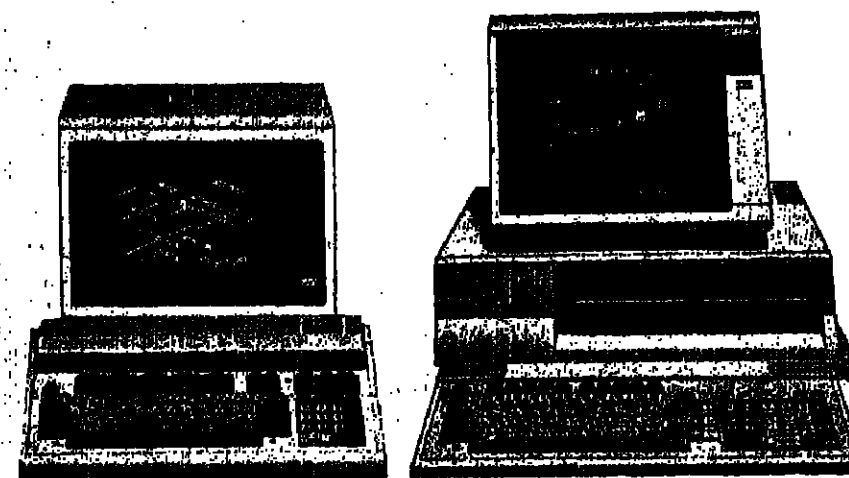
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Our current development programme is based on UNIX and C using the 68000 microprocessor family.

Applicants should have a proven record in technical software design and implementation, and specific experience with any 3 of:

- 68000 • C, Pascal • X.25
- Local Area Networks • UNIX, VMS.

Software Support Engineers to £10,000 + car

To be responsible for the installation and maintenance of our software products at customer sites.

The position will involve liaising with customers at all levels, so good communication skills are essential.

In addition, applicants should have at least 2 years' experience in the data communications field.

Camtec is a wholly British, wholly independent manufacturer of terminal concentrators, inter-network gateways, and computer interfaces, based in Leicester.

As one of our more prosperous provincial cities, Leicester has a strong tradition of support for the arts and provides excellent sporting facilities. Being close to the M1 and M69, fast communications throughout the UK are possible, and local housing prices are extremely reasonable, with 3 bed detached houses from around £25,000.

In its 3 years of existence, Camtec has established itself as a leading light in the data communications market and we are now seeking to

consolidate our position by creating these important posts. This is an opportunity to join a dynamic and creative company with excellent career prospects working in a rapidly expanding field.

Applicants, male or female, should have a degree in an appropriate subject together with around 5 years' relevant experience. Relocation assistance will be given where appropriate.

CAMTEC
Joining networks together

WRITE ENCLOSED DETAILED C.V. TO: CAMTEC ELECTRONICS LIMITED, 18 MELTON STREET, LEICESTER LE1 3NA. TEL: (0533) 637534.

SENIOR APPOINTMENTS - £14 K +

Now one of Britain's largest and most successful companies

Sainsbury's 'astonished the City again' with its half year results in November showing sales of over £1,300,000,000 and profits up by 28%. And with computers playing an increasingly vital role at the very heart of the company's operations we are looking for a number of able, IBM experienced, data processing staff to help us exploit the full potential of the new technology to consolidate the company's outstanding performance.

Already equipped with 3 large mainframes including an ICL Atlas 10, one of the most powerful 'IBM architecture' processors available, we are currently preparing for the installation of a 4th large mainframe early in 1984. Our systems are running under MVS, CICS and DL1 at two principal computer centres in London and Stevenage linked by a digital Megastream circuit capable of handling 2 million bits a second. Radiating from these two centres we are now implementing a countrywide communications network designed to service the total company requirements, making use of branch computers, laser scanners, minis, micros, office automation and information centre facilities. The technical demands are enormous and immensely stimulating.

Work has begun on many systems, and indeed is now well under way on some, but there are still splendid opportunities for the right people to join an accomplished team to help make it all happen. Specific opportunities are listed here but anyone who feels that they might be able to contribute in other areas is warmly invited to get in touch with us.

- All posts offer excellent benefits, including:
- interest free season ticket loan;
 - subsidised restaurant;
 - profit sharing after 2 years' service;
 - share option scheme after 3 years' service;
 - pension scheme;
 - relocation assistance where appropriate.

Systems Programmers From £12,500-£16,500

Our priority need is for systems programmers who can bring in-depth experience of MVS/CICS/DLI/IMS/ACF2 etc, though applications from candidates with less experience but the right potential will also be welcome. Ref: SP/1.

Operations Analysts Earnings up to £12,000

We have opportunities for experienced Operations staff ready to employ their practical experience to influence the way in which applications are implemented and to support ongoing production. Training is given to allow staff to develop wider skills. Ref: OA/2.

Production Staff Earnings £10,000-£13,000

We are looking for experienced staff with a wide variety of specialist skills to work in the Production area ranging from Network Control to Capacity Planning and from Training Development to Contingency Planning. Ref: PS/3.

If you are interested...then please telephone Leslie Thompson, Recruitment Manager on 01-921 6576 for an application form. Alternatively forward a detailed c.v. to him at J. Sainsbury plc, Wakefield House, Stamford Street, London SE1, quoting the appropriate reference number.

SAINSBURY'S

Technical Services Manager

NEW APPOINTMENT

City

Salary to £20,000, Benefits

for the Information Systems Division of a prestigious International Bank centred on a large scale IBM based computer complex.

Reporting to the Divisional Manager, the appointee will be responsible for determining and implementing technical systems strategy, and influencing the technical shape of future computer systems development in the organisation.

The brief is to build an integrated and coherent technical environment to sustain a highly efficient level of service to an expanding and demanding business.

Applicants for this new appointment must be able to demonstrate a wide range of experience of IBM systems software, preferably gained in a large scale, on-line or real time processing installation. They must be particularly skilled in effectively managing or supervising a developing technical environment.

The appointment affords an attractive starting salary, and range of exceptional benefits.

Please send a CV, or write or telephone ANTHONY SPURR, Manager, Executive Selection Division, at the address below, quoting reference number GW1175.

BIS Applied Systems Limited
York House, 199 Westminster Bridge Road
London SE1 7UT
Telephone 01-633 0866



SENIOR APPOINTMENTS - £14K +

Strategic, Manager/Section Manager level appointments in...

LSI/VLSI DESIGN

to £18,000

As the key part of their recently initiated major investment programme my client seeks to identify and recruit the exceptional circuit design talent currently operating within the semiconductor area.

Having built up an outstanding record of achievement in the area of high volume, high density circuits, predominantly through design excellence, a further three or four key individuals are needed to take up senior level assignments.

They can expect to join what is probably the fastest growing and most successful design team currently operating outside of the USA.

The major investment programme in people, manufacturing and computer aids is geared to implement a product diversification strategy aimed at decreasing the dependence upon high volume manufacture. This will provide expansion in the custom/semi-custom area with particular emphasis on telecommunication products.

The benefit package is amongst the best in the industry and carries the usual elements of life assurance, pension, health insurance, relocation to an attractive S England base and of course high basic salary.

If you have the motivation to ensure that the UK stays firmly on the VLSI trail...

Contact Nick John on Windsor (07535) 56155, or write to him at
Kramer Westfield Associates Ltd., 23 Victoria Street, Windsor, Berks. SL4 1HE.

Recruitment Consultants to the Semiconductor Industry.

Kramer Westfield

(6782)

Network Engineer

c. £11,000

A front line role in international communications

Our client, based in the north of London, is the International Data Centre of a worldwide marketing and manufacturing corporation. The extensive network includes some of the most recent voice and message switching kit and covers U.K., Europe, U.S.A., Africa and Australia.

As a result of the development of new Ethernet based systems an additional Network Engineer is needed.

You will be responsible for the installation and support of data communications equipment which enables the company to transfer data throughout Europe. You will work without close supervision away from base and establish good relationships with other computing professionals who will be your customer base. Short periods of foreign travel will be necessary as some of the assignments will be in the European companies.

You should have an understanding of data communications at an operational and technical level gained from a telecommunications or multinational corporation. You should also enjoy individual responsibility within a team atmosphere that is supportive but challenging.

Our clients benefits package includes free life assurance, BUPA and a comprehensive relocation package.

To apply please telephone Jane Jorjes today, quoting reference No. 418, on 01-631 4184 or write to her at A&A Consultants (Holding) Ltd., County House, 10 Little Portland Street, London W1N 5DF.



BOX NUMBERS

Box number replies should be addressed to:

Box Number

c/o Computer Weekly
Quadrant House, The Quadrant
Bilton, Surrey SM2 5AS

Computer Operator

The Daresbury Laboratory, situated in the North Cheshire countryside, is one of the Science and Engineering Research Council's major research establishments providing major facilities for computer research and development by University research workers from this country and abroad.

A Computer Operator is required to undertake shift work, operating both main frame and smaller networking computers. The vacancy is in the immediate vicinity of one of four teams of three persons who each operate a machine.

a) Operation of the central computer, an IBM compatible NAS AS/400 with a good range of peripheral devices and services.

b) Operation of the networking computers which currently include DIX, GEC and PDP11/45 machines.

c) First level support to users experiencing problems or making requests, and liaison with the user support group.

d) Using the computer facilities as an aid to managing the service.

These duties will allow the operator to gain experience mainly in controlling and operating the work of the computers but also in using programming languages, job control language etc.

Applicants (male or female), between 18 and 26 years of age, should possess at least GCE 'O' level, grade A, B or C (or CSE grade 1) passes in four subjects including English Language or Literature and Mathematics or Physics. Experience of, and interest in, computing and scientific subjects would be an advantage.

Appointment will be made in the grade of Assistant Scientific Officer on a salary scale £3,751 (age 18) to £6,014 per annum. There is a non-contributory superannuation scheme and a generous leave allowance. Appropriate shift disturbance allowances will be paid for shift working.

CLOSING DATE: 30th December, 1983.

For further information please write to, or telephone, Mr J. C. Hopkins on Warrington (0925) 65000 Ext. 510.

Application forms may be obtained from and should be returned by 30th December 1983, quoting reference number DL/836 to The Personnel Officer, Daresbury Laboratory, Science and Engineering Research Council, Daresbury, Warrington, Cheshire WA4 4AD.

Daresbury
SCIENCE & ENGINEERING
RESEARCH COUNCIL

EAST LOTHIAN DISTRICT COUNCIL
Department of Finance

COMPUTER MANAGER

(Salary £11,262-£12,417)

Early in 1984 the district council will upgrade their existing computer facilities with the installation of an IBM/3090 system. A number of financial applications are already on computer and it is intended to develop a full range of non-financial applications in the near future.

The new post of Computer Manager will be responsible to the Director of Finance for advising on the planning, development and implementation of all applications, working closely with various council directors, together with control of the existing computer operations section.

Applicants should have had around three years' programming experience, preferably in COBOL, and at least two years' systems analysis/design experience preferably on interactive multi-programming systems.

The successful candidate will be required to have proven ability to communicate with all levels of staff and user departments. Local authority experience, though not essential, would be an advantage.

Application forms and further particulars may be obtained from the Personnel Officer, Council Buildings, Haddington (Tel. 02242 4111 ext. 258), to whom completed forms should be returned by 12th December 1983. Counseling in any form will be available and candidates need disclose if they are related to any member or senior officer on the council.

(6729)

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The substantial growth and continued investment by this Aerospace and Defence Systems Company in major research and development projects, has created the following vacancies at their research and product development centre in the West of England.

SENIOR SOFTWARE ENGINEER
To join a small team working on the development and integration of Ada based software tools and techniques.

The successful candidate must be innovative and have the ability to undertake feasibility studies, design, implementation and to liaise effectively with customers. He or she will have previous experience in at least some of the following:

- Translator Design
- Real-time software
- Distributed Processors
- Modern Programming Languages
- Formal software verification techniques
- Large scale software development
- Configuration management

IMAGE PROCESSING ENGINEER
To secure and develop the research group's image processing capability, working in a software systems team involved in state-of-the-art development at the forefront of technology. The work will involve feasibility studies, design, implementation and customer liaison.

Applicants will have familiarity with a range of image acquisition, characterisation, processing, analysis, interpretation and presentation techniques and technologies.

SENIOR CAD/CAE ENGINEERS
To be responsible for the creation, installation and development of integrated CAD systems, the objectives of which include the electrical performance and logical validation of digital designs implemented in V.L.S.I. full custom, part custom and off-the-shelf technologies.

Applicants will have relevant training/experience including electronic design and the software design of relevant CAD systems. For all these positions, applicants should be graduate engineers with relevant experience.

For a confidential discussion concerning these opportunities, phone Marc Woolmer on 045-383-4877 or write to him with full career details at:

Marc Woolmer & Partners,
Suite 545, Chancery House,
53/64 Chancery Lane, London WC2 1QU.

PERSONNEL & SELECTION CONSULTANTS

Marc Woolmer & Partners

New continuous stationary company require REPRESENTATIVE

Our clients require immediately someone with current selling experience into the end-user market for short-run mini, micro and word processing applications.

A knowledge of both continuous printing and customer's computer related needs is essential. Location is South Central London.

This is a career position for someone with vision and top selling ability. Ultimate senior management or directorship is also a possibility for the right person.

An attractive remuneration package is offered circa £20,000 plus car.

Telephone: Colin Johnson & Associates (0892) 39563.

Outgoing reference: BICI,
21 MOUNT SPINHAM ROAD, TUNBRIDGE WELLS, KENT TN1 1EN.

Manager R-T Software

Herts. to £16,000

You will be responsible for three teams of software engineers developing real-time applications mainly based on Intel 8080/8088 micros. As well as supervisory experience we would expect candidates to be competent in a block structured language and to have a sound appreciation of micro electronics. Benefits include relocation assistance where appropriate.

Sales Engineer

Surrey c.£15K package

No previous sales experience required but an appropriate manner and appearance are important for this position. Candidates will need a background in real time software probably gained in a software house environment. The job will require some new business prospecting for an expanding software house and the ability to prepare technical proposals and quotations.

P.R. Tech Writer

Berks. c.£13,000

A qualified software technical author is probably the person being sought for this position. You will be capable of copywriting, direct mail marketing, editing newsletters, writing up users' applications stories etc. Any experience in an advertising agency, or similar would be useful. We are seeking self starters who are motivated by their measure of contributions. Excellent company image.

Systems Software

Herts. £29K-£13K

Continued expansion of our client's system software development has resulted in a number of vacancies for enthusiastic and, above all, outstanding systems programmers and engineers. Opportunities exist in many areas including compilers, application tools, transaction processing, comm., etc. We can introduce you to genuine career opportunities offering significant responsibility at the leading edge of technology.

Mainframe Applications

London to £20,000

A major systems house with an outstanding reputation is seeking several people from mid to senior in experience. Candidates will have had design responsibility for DB or TP systems in a mainframe environment. There are opportunities for Project management, Consultancy, Design, Training, Trouble-shooting etc. People with a positive attitude will find unlimited career opportunities in this very successful company.

UNIX 'C' Programmers

Berks. £29K-£14K

Five companies can demonstrate a more impressive record in the development of microprocessor software. Recent projects include the production of a COBOL compiler for operation under UNIX. We are now seeking programmers with a background in systems software and INTEL micros to participate in the development of associated run-time systems in 'C'. A position also exists for someone to do Compiler Support.

Comms. Networks

Herts/London to £20,000

A major telecommunications project which will be serving civil and military users in the 90's is providing challenging and varied opportunities now for designers (software and hardware), project leaders, consultants who have background from voice and data switching, packet switching, network management, data base management, OSI, office automation etc. Reloc. assistance where necessary.

Systems Designers

Herts. to £14,000

Software engineers and electronics engineers are required to participate in major new product developments in communications, office system products and LAN applications. Previous experience is only confined to technical applications. The primary requirement in this company is a positive attitude and a desire to succeed. The company has an excellent program of internal training. Relocation assistance.

Project Ldr. Tech. Author

N.London £10K-£12K + car

An experienced software technical author is required to be responsible for the complete documentation set for a new software product currently under development. The successful candidate will work closely with the development teams at a different location which is why the car is provided. Excellent company benefits include free BUPA, life assurance and company pension scheme.

Team Leader

W.Herts. to £13,500

Our client occupies a leading position in the design, development and manufacturing of a range of micro based data capture terminals in retail applications. A team leader is required for a new project just being manned. Candidates will need real time programming skills with assembler and a high level language. RSX and CP/M desirable. 2780 comms. useful.

Project Manager

Middx. c.£20K + car

Technical experience with DECNET and RSX11 are essential for this very attractive, senior, position. Our client is installing a major network of terminals throughout the U.K. for a well known High Street retailer. Your job will require tact and diplomacy to work closely with the client and technical skill and firmness for liaison with development personnel.

Client Support

Bucks/N.W. to £16K + car

Continuing expansion in this highly successful manufacturing company opens the door for software people with experience in on-line D.P. systems, T.P. and comm. Candidates will be expected to assist clients with applications development, perform sizing as required and generally act in an account manager capacity. Excellent prospects and relocation assistance where appropriate.

Comms. Product Dev.

Herts. £10K-£18K

Which ever aspect of data comms. you prefer you can be sure there is interesting work being done by this client in the area of your choice. Extensive use is made of the M68000 processor and most work is being done in 'C' or assembler. You can join in on X.25 projects, LAN, systems, inter-networking, modern design, etc. Let us know your requirements.

PRIME Analyst/Prog.

London to £15,500

A major oil company with Prime mini computers is seeking an experienced analyst programmer to join a small department which is developing applications in Fortran and making extensive use of INFO. The ideal candidate will have good analytical skills and scientific/modelling applications experience. This is an ideal opportunity to develop your career in a financially sound market area.

S/W Product Support

Herts/Germany/USA bases to £25K

Genuine high rewards if you can meet this tough specification. 5 years MVS systems programming, SAS and assembler proficiency, in depth knowledge of internal TSO, CICS/IMS. Identified as one of the 500 fastest growing private companies in the U.S.A. our client's performance measurement and monitoring packages are installed in hundreds of major installations worldwide. 10-20% international travel.

Micro Assembler

Berks. £28K-£14K

We are seeking several bright, assembler level programmers to work on compiler or O/S linked application projects. You could choose between providing support to OEM customers, adding new facilities to existing products or compiler development work. We would wish to see relevant experience including 8080/86 assembler. Computer Science, Maths or Physics graduates preferred. Relocation assistance where necessary.

Micro Electronics

Herts. to £14,000

Electronics designers who can demonstrate an in-depth awareness of the application of micro processors to real-time technical problems will find challenging projects and long term career prospects with this client. Candidates will work in small teams on current and new projects. Knowledge of Intel 8088 and some programming skill would be useful. Reloc. assistance where appropriate.

Open letter to experienced computing staff seeking new opportunities

Write or telephone (02403) 28383 during office hours. We are always ready to discuss these and many other interesting positions.

Evenings and weekends only:

Terry Harvey - Great Missenden (02406) 4705

Brian Coates - Chesham (0494) 785722

John Barker - Hyde Heath (0494) 783096

(6788)

HR

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HR

WE'VE GOT WHAT YOU'RE LOOKING FOR!

PROGRAMMERS & ANALYSTS CENTRAL LANCs

Innovative DP Dept of a successful commercial company using IBM mainframes, COBOL, CICS, DLI, COPICS, etc.

PROGRAMMERS & ANALYSTS LIVERPOOL

HONEYWELL installation using COBOL. Programmers must have on-line and Database, and Analysts should have Business experience.

RSX SPECIALISTS LIVERPOOL

New team about to be formed to work on automatic warehousing applications using CORAL 66 on PDP 11 hardware under RSX.

SENIOR SYSTEMS & S/W PROGRAMMERS LIVERPOOL

ASSEMBLER is a must for these challenging positions with a major commercial company who use IBM mainframes. Graduates with AT LEAST 3 years experience.

SYSTEMS ANALYST & DP STAFF LAKE DISTRICT

Ideal location offering genuine career potential to Systems Analysts who have good SA experience on any hardware. Company use a wide range of equipment and are particularly interested in applicants with manufacturing, distribution or retail experience.

ANALYSTS & PROGRAMMERS MANCHESTER

A retail or business background and 3 years experience of COBOL on ICL mainframes is essential. Applicants who have a year's VME experience will be particularly welcome.

ANALYSTS & PROGRAMMERS SOUTH WIRRAL

This well known company are offering good career moves for either Analysts, with a good business background (preferably data analysis & production control experience) or Programmers with 3 years COBOL and ideally CICS & DLI.

IBM SPECIALISTS LIVERPOOL

Systems Analysts, Programmers, Project Leaders and Technical Specialists required for a variety of projects throughout the North. Any of CICS, DLI, TOTAL, SYSTEM 38 and COBOL on IBM mainframes an advantage.

SYSTEMS PROGRAMMERS S. MANCHESTER

The DP Dept. of this Chemicals company has an urgent requirement for an additional Systems Programmer with IBM, PL/I, CICS and DOS/VSE.

PRE & POST SALES/CUSTOMER SUPPORT BIRMINGHAM

IBM Comms knowledge and fluency in COBOL are needed for this Systems House where the main applications are accounts, invoicing and production control. Applicants must be presentable and car owner/drivers who can write specifications and amend packages.

PROGRAMMER/ANALYSTS MANCHESTER

This systems house prepares financial packages for building societies and have a requirement for owner/driver P/As who can program in COBOL and who will be prepared to spend periods of 6 weeks at a time anywhere in the UK. Hardware is TI.

PROGRAMMERS & ANALYSTS MANCHESTER

Programmers will need either PL/I or COBOL and a minimum of 2 years experience for positions within this large company. Whilst Analysts should have a proven record of work on both batch and on-line systems.

Seeing is believing

Whatever type of specialist job you're looking for, we are the most professional, knowledgeable computer service and staffing company in the business. We speak your language so we can pinpoint the position you want. We insist on the best because you do too. See for yourself, just at the latest selection of jobs we have for this week. If you don't see exactly what you're looking for here, ring us anyway - we're sure we can help. Then you'll believe when we say at Lorient - We got it.



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O.C.S. House, Seabrook Road, Leeds LS7 1N
Tel: 0532 455911

SENIOR ANALYST PROGRAMMER WEST YORKSHIRE

This high technology company currently uses an IBM SYSTEM 34 but plans to upgrade to a 36 shortly. A good Analyst/Programmer is now sought to take charge of several major developments. A GSD background is essential as is strong Business/User experience.

PROGRAMMERS WEST YORKSHIRE

You will need a minimum of 18 months IBM COBOL for these positions on a rapidly expanding 4300 site. Experience of CICS or DLI or MANTIS is also sought and you can expect to enjoy rapid career progression.

PROGRAMMER SHEFFIELD

An ASSEMBLER Programmer with a background on any hardware is sought by this major manufacturer which is developing real-time financial systems. Prospects for advancement towards Analysis and Customer Support are excellent.

PROCESS CONTROL PROGRAMMER LEEDS

A major group with a heavy commitment to real-time manufacturing control applications are now seeking an additional Programmer with strong expertise in this area. You will need sound FORTRAN and ideally will have experience of RSX11M.

PROGRAMMERS SENIOR PROGRAMMERS LEEDS

Programmers at all levels are sought by this major ICL user. A minimum of 18 months ICL COBOL experience is needed for the junior positions, whilst the senior ones require knowledge of IDMS or TPMS.

ASSISTANT DATA PROCESSING MANAGER BRADFORD

A small site is now seeking a Programmer with at least 2 years experience of COBOL or BASIC. You will work with a high degree of autonomy and be involved in all aspects of systems development on interactive mini hardware.

SENIOR PROGRAMMER HUMBERSIDE LEEDS

Good IBM experience allied to knowledge of CICS and DLI is required for this position. This is a senior level position, with supervisory responsibilities, and there will be extensive development involvement on a range of applications.

PROGRAMMER/ANALYST SHEFFIELD

You will need at least 18 months ICL COBOL experience, preferably gained on ME29 machines for this interesting position on a small dynamic site. Exposure to transaction based systems, ideally TME/TP would be an advantage.

ANALYSTS/PROGRAMMERS NORTH YORKSHIRE

This major company, a large IBM user, has vacancies at all levels. A good academic background allied to a minimum of a year's IBM COBOL experience is sought. The salary and benefits package is one of the best available.

SENIOR ANALYST/PROGRAMMER LEEDS

If you have around 3 years BASIC gained in a RSTIS environment this company is offering the opportunity to take on Project Management responsibilities. Prospects for further progression are excellent on this rapidly growing site.

PROGRAMMER/ANALYST LEEDS

Working in a client driven role you will be involved in all aspects of developing sophisticated mini based systems for this hardware manufacturer. Good programming experience using any high level language is sought as is experience in the analysis discipline.

ANALYST/PROGRAMMER BRADFORD

A strong analysis background is essential for this senior level position on a small mainframe site. The company can offer excellent career prospects to the right applicant.

Contact JOHN LEVINS or GARY SMITH on (0532) 455911 during office hours or JOHN LEVINS on (0532) 785825 evenings and weekends, or write to the address shown right.

Contact JOHN MASON or GARY SMITH on Leeds (0532) 455911 during office hours, or JOHN MASON on (0532) 486967 evenings and weekends, or write to the address shown left.

NEW OPPORTUNITIES WITH ARAMCO TO £23k

The Arabian American Oil Company (ARAMCO) has a number of organisations and departments which rely heavily on the services provided by their state-of-the-art IBM data processing department. PL/I is the development language for their wide variety of commercial, financial and administrative systems. The diversity and size of such an operation offers tremendous scope for a variety of personnel currently required, namely:-

● Ambitious PL/I Programmers or Analysts/Programmers with three years' plus experience. You should have a knowledge of OSJCL and TSO. IMS would be an advantage.

● Business Systems Planners who should have an understanding of strategic application planning.

Applicants should have a broad EDP background including business analysis, risk/benefit analysis and experience of dealing with all levels of user management. Mini/Micro experience would also be an advantage.

● Technical Systems Planners with a similar background to the Business Planners but with added experience of equipment/software selection and the integration of such within an office systems and telecommunications environment.

ARAMCO is unique in the Arabian Gulf for the splendid recreational facilities it can offer the expatriate employee and special interest/hobby groups are as far ranging as wind surfing to amateur dramatics. Successful candidates can expect subsidised air conditioned accommodation, free medical treatment, generous holidays and return flights to the U.K. The contract of employment is for an indefinite term, on a single status basis, and the positions require a degree or HND.

These requirements are urgent so act now to arrange an immediate interview in one of our regional offices. Contact Penny Stockton 01-836 8411 or write to her at Computer People London, VII House, 88 St Martin's Lane, London WC2N 4JS.



Computer
People
London

MANAGEMENT & EXECUTIVE SELECTION

customer-engineers

telephone 01-637 9611
Suite 201/6 Albany House
324 Regent Street
London W1R 5AA

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Site E.D.P. Manager

Interesting Career Opportunity - Lake District
c.£16,000 p.a. + bonus

Glaxochem Limited is a member of Britain's largest pharmaceutical group and is responsible for the manufacture of bulk pharmaceuticals and fine chemicals for worldwide distribution. The Ulverston site, located in the scenic Lake District, employs 1600 staff and is one of the largest pharmaceutical sites in Europe.

As part of a major new development programme we are seeking a graduate or equivalent, ideally aged early to mid thirties, who has significant experience of systems applications and preferably some involvement in computer operations. Some direct managerial experience is highly desirable, although individuals looking for their first management position would not be excluded.

The challenge will be to manage and develop a small but growing site team, currently eight staff, in the operation of on-going computer systems and the implementation of new applications. A high degree of user liaison and interaction will be involved and a contribution to the total company E.D.P. effort will also be envisaged.

The company utilises Hewlett Packard equipment and knowledge of this would be advantageous, but is by no means essential.

Career opportunities within the company's expanding E.D.P. function are excellent.

The attractive remuneration package includes a significant bonus, non-contributory pension scheme and generous assistance with relocation.

Please write or telephone for an application form, quoting reference 411/14, to: W.K. Bradford, Personnel Manager, Glaxochem Limited, North Lonsdale Road, Ulverston, Cumbria LA12 9DR. Tel: Ulverston (0229) 52261. Please do not send C.V.s.

(8817)

Glaxochem Limited

TSP

Technical Support People Ltd.

ANALYSTS, PROGRAMMERS, PROJECT LEADERS, CONSULTANTS

We Need A

SENIOR SYSTEMS ANALYST WHO IS GOING PLACES — Careerwise and Travelwise!

This is one of those rare opportunities that provides the chance for both creative thinking and getting out and about to give other people the benefit of your skills.

Our client is deeply committed to IBM related systems with considerable emphasis on manufacturing systems. This means exposure to COBOL and MRP within a DOS/VSE + CICS environment, utilising the very latest computing techniques, primarily involving on-line systems and fully utilising the skills of a young and energetic team of specialists.

The person we are seeking will be given broad responsibility for supporting and advising users throughout the United Kingdom, operating from our head office in

THE MIDLANDS

He or she must therefore have the appropriate qualifications and human characteristics to both succeed within an IBM related manufacturing environment and establish a high level of rapport with senior management within all client organisations.

We wish to provide the best possible reward for the best possible people and therefore expect to provide a total package valued at:

£14,000

Sierra 1.6GL

(including private mileage)

together with other fringe benefits, including a company car, pension, medical and

Please provide complete career details to: Technical Support People Ltd, quoting reference SDA/123.

LONDON & SOUTH

29 Oxford Street,
London W1. (01) 734 8776

MIDLANDS & NORTH

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NEW ZEALAND SYSTEMS ANALYSTS OR SENIOR SYSTEMS ANALYSTS DEVELOPMENT METHODOLOGIES DATABANK — A WORLD LEADER

Databank Systems Ltd., is unique in its central role of handling the EDP needs of all the New Zealand trading banks as well as operating a substantial commercial bureau operation.

We have developed and operate a nationwide distributed network which links 17 computer centres and hundreds of bank branches. The hardware includes 20 mainframes (ranging from IBM 3083's to IBM 4331 (Group 2) machines) together with numerous mini computers and micro processors. Development activities are concentrated in our head office in Wellington (New Zealand's capital city). Current major developments include the re-development of the basic banking system using the information engineering methodology.

The department for which we are recruiting has the important role of supporting the use of information engineering by the applications development teams. This support is provided through the provision of internal consultants as well as evaluating current practices, tools and aids, and introducing improvements.

Our vacancies will interest those who are already senior systems analysts or equivalents, and who have a good knowledge of information engineering, data analysis or a related structured analysis technique. They will be able to demonstrate a professional approach to technical problems and human relations as well as an ability to think logically and to communicate well.

If you are definitely interested in a career with one of the world's leaders in EDP please air mail a resume to:

Manager
Staff Services
Databank Systems Limited
PO Box 3847
Wellington
NEW ZEALAND

Two of our senior managers will be in the UK early 1984 to personally discuss what Databank and New Zealand can offer.

(8830)

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Our client is in the forefront of computer technology and is among the leaders in this field of advanced engineering applications.

Here is an opportunity for you to help expand the frontiers of new technologies. A number of exciting vacancies exist for Software Engineers/Programmers at various levels, who are keen to take this important step forward.

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The plant is linked to an ICL2900 at company HQ and has in-house a DEC PDP 11/34. You will also appraise new minis and micros for possible future use.

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Contact Janet Roberts,
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To accommodate growth within our Computer Services Division we will shortly be moving to a new purpose built computer centre.

As a result of this expansion a vacancy has arisen for a Senior Operator, who will report directly to the Shift Controller.

Based at Leicester the installation operates an IBM 3081/3083 MVS JES3 complex, 3380 disks and 3800 laser printers, supporting CICS/DLI/TSO/ROSCOE and a large local/remote network. A full range of computer services are provided to a number of companies within the Sears Group.

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The newly formed Defence Systems Division is geared for expansion and will address a broad range of defence communication projects.

Our immediate requirement is for staff to help create the new integrated defence communications network — PROJECT UNITER.

As part of the expansion we require additional Engineers at a variety of levels from new graduate to principal.

We require ENGINEERS who will formulate technical policy and lead studies in a telecommunications environment. Topics include:

- ★ Switching ★ Transmission
- ★ Data ★ Network Management
- ★ Signalling ★ Computer Control

To be successful you will need a degree or equivalent, ideally with experience in defence projects or telecommunications systems. In joining Defence Systems you should be expecting to gain greater responsibility and to advance your career in a professional engineering environment.

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Joan Thorpe, Personnel Department, GEC Telecommunications Ltd., P.O. Box 53, Coventry, CV3 1HJ.

GEC
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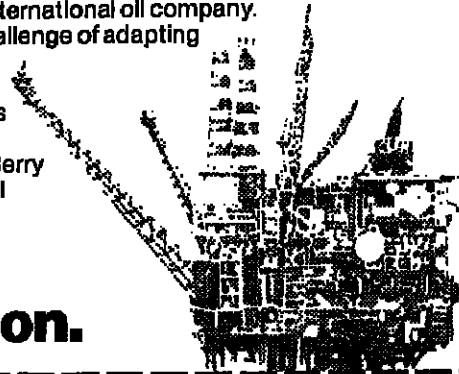
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(6838)

Computer Personnel International

30-32 Southampton Street, London WC2. 01-836 6776

North Sea Sun Oil Company Ltd. has an immediate opening in its London office for a

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To apply for this position, please send a career resume with details of qualifications and experience to: J.S. Wagner, Manager of Reservoir Engineering, North Sea Sun Oil Company Ltd., 90 Long Acre, London WC2E 9RA. Tel: 01-836 2468

SUN

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Miss Selfridge, a leading retail fashion chain, is seeking a young computer professional to work on the development of their ADI/ADRS, reports and mainframe systems, in close liaison with their Business Information Manager and Buying/Merchandising teams.

You will probably be either a recent maths or science graduate, with a good knowledge of programming, or an established Programmer, with 2-3 years' experience and a knowledge of APL. Good communication skills, energy and initiative are also needed.

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To apply, please write, with details of your experience and qualifications, to: Joanna Farrelly, Personnel Manager, Miss Selfridge Ltd., 21-27 Warple Way, Acton, London W3 0RQ. Tel: 01-743 8080.

Miss Selfridge

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Reference: JC/4

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Reference: LJ/2

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Reference: WC/1

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Reference: LJ/1

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INTERFACE
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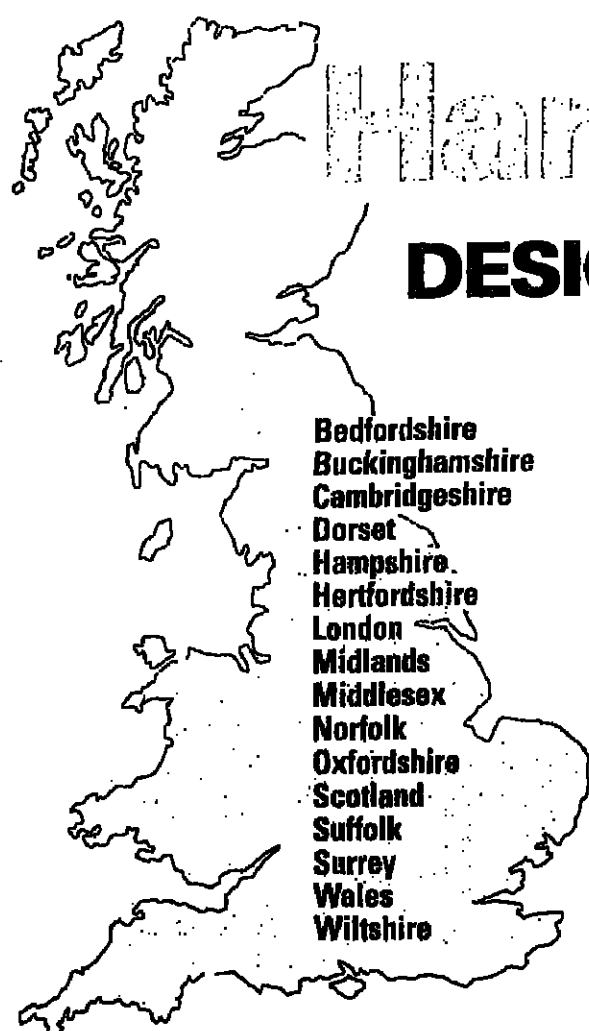
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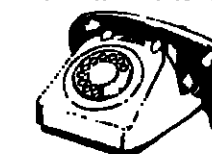
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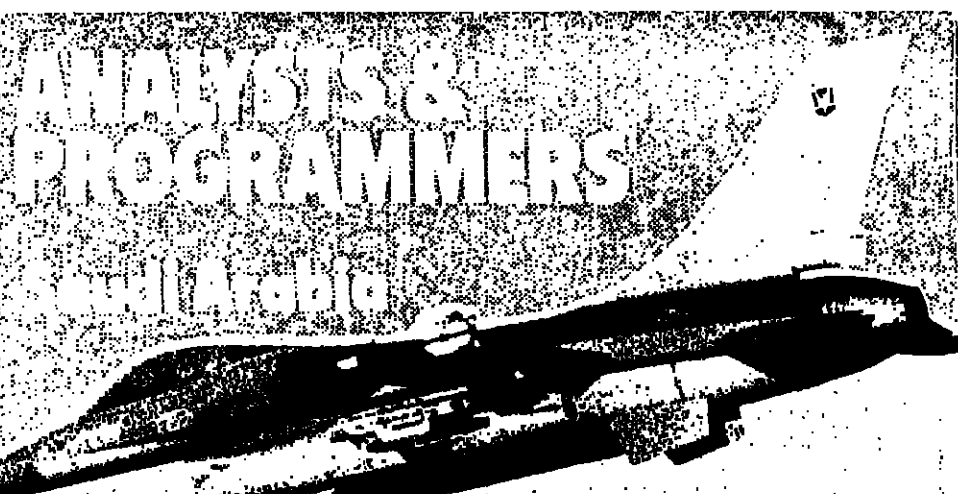
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CAREER PROGRESSION

RECRUITMENT

An excellent opportunity exists for a young well educated Computer Engineer or Salesperson to develop a division of our Fleet Street Consultancy, specialising in the recruitment of skilled personnel in all sectors of the computer/electronics industry.

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The Moving Picture Company

Computer Animation Programmer

The Moving Picture Company is situated in the heart of London and is the best equipped video facility in Europe. We require a person to develop and operate our 3D imaging systems. Programming would at first be mainly in BASIC and later PASCAL using several Hewlett Packard computers. You should have practical skills in 3D graphics and the ability to work efficiently under pressure. Experience in working with film and video would be a great advantage.

Applications in writing only with details of relevant experience to Maggi Allison,
The Moving Picture Company, 26 Noel Street, London W1.

A Major Growth Opportunity

Systems Analysts

To £11,000

Manchester

Our client is a well established company, a leader in its field, currently embarking on a major development of its computer activities brought about by sustained business growth.

The Positions

The vacancies arise within mixed project teams working primarily on new development projects based on IBM 3083 with laser printing facilities.

Candidates

Should ideally have an Assembler programming background with a minimum of two years analysis experience. One of the several vacancies would ideally suit a candidate skilled or keen to develop in the area of database design and administration, salary for this position may be negotiable above the level indicated.

Benefits

Include contributory pension scheme, free life insurance, a staff discount scheme and relocation will be paid where appropriate.

All replies will be treated in strict confidence.

For further details, contact Tony Roberts on (0270) 627206 daytime or (0270) 624058 evenings and weekends, or write to him at the address below.



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We have an urgent requirement for a number of Programmers and Analyst/Programmers.

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Senior Systems Analyst

British Aerospace has a vacancy on its Saudi Arabia Support Contract for an experienced Systems Analyst to work with the Royal Saudi Air Force computer directorate. Duties will include feasibility studies, evaluation of contractors' proposals, and implementation of new systems. There may also be a requirement to train RSAF staff. The successful applicant will evaluate existing systems and recommend changes where necessary. The task will involve close liaison with user staffs and the preparation of documents and technical reports.

If you have the qualifications and appropriate experience in data processing systems, you could earn at least £18,513 in the first year, £19,313 in the second year tax-free as a Senior Systems Analyst...

...working in Saudi Arabia with BRITISH AEROSPACE

A minimum of 5 years' DP experience is essential and familiarity with Hewlett Packard computers and the associated IMAGE system is highly desirable. (Training may be available if necessary.)

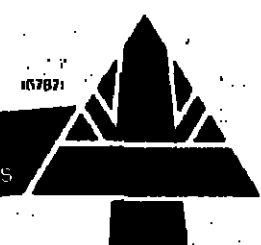
The ideal candidate would have a commissioned military background specialising in logistics. Possession of a science-based degree would be an advantage.

In addition to the high tax-free salary, the successful candidate will receive free accommodation, messing, medical care and other benefits, including travel-paid UK leave.

Please apply in writing, giving brief details of experience or telephone Preston 633333 Ext. 125.

Mr. D. Tully, Senior Personnel Officer, Dept. 069/CW
Saudi Arabia Support Dept.,
FREEPOST, British Aerospace Aircraft Group,
Watton Division, Watton Aerodrome,
Preston, Lancs. PR4 1LA.

BRITISH AEROSPACE
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The Irish Industrial Development Authority will be establishing a National Software Centre in Dublin as a subsidiary organisation to support the continued growth of the software industry in Ireland. The Centre will:

- provide a range of technical support services for the development of the industry in Ireland
- develop innovative software products in co-operation with software and hardware manufacturing companies
- provide training in advanced techniques so as to increase the technical capabilities of companies.

It will operate as a private limited company with its own board of directors and will be expected to become self-financing.

Executive Director, Irish Industrial Development Authority personally at Dublin 00011601520 or forward your Curriculum Vitae to him, marking your envelope 'Personal and Confidential' before 10th December 1983 at Irish Industrial Development Authority, Lansdowne House, Dublin 4, Ireland. (0781)



The National Software Centre Ltd.

Managing Director

A Managing Director is now being recruited to establish, develop and manage the National Software Centre. This is a key appointment as the person recruited will have primary responsibility for the launch and operational success of the Centre. To qualify for appointment to this position, you should have an extensive management and technical background in software development in a commercial environment, desirably with international experience.

You should also have a qualification in a relevant discipline and have the necessary drive and vision to build up the Centre to become a key resource in the future development of the software industry in Ireland. The salary and conditions attached to this position will be negotiable. They will reflect the high calibre of the person sought and the importance of the post. If you would like more information you can telephone Paul McMenamin.

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Bacon & Woodrow are a leading firm of consulting actuaries providing a wide range of services in the fields of pensions, life assurance and investment analysis. We are looking to fill the following positions at our Southend office.

Systems Analyst Salary up to £11,000 p.a.
We require a d.p. professional to take responsibility for the development and maintenance of new and current systems. He/she is likely to have a financial background preferably with some programming experience.

Programmer Salary up to £8,000 p.a.
We require a person to participate in the development and maintenance of our varied applications. Candidates should have had at least three years' programming experience including use of third and fourth generation hardware. He/she should be familiar with COBOL but be prepared to learn and use FORTRAN.

Our current installation comprises a large HP3000 system (with extensive terminal and telecoms facilities) and various microcomputers. For application form and further details, please apply to:

The Computing Manager, Bacon & Woodrow, Barry House, 29 Victoria Avenue, Southend-on-Sea, Essex S82 6AZ Telephone: 0702 339851. (0603)

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Management Information Systems
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c. £16,000 + Car

Graviner Ltd, a member of the Wilkinson Sword Group is a world leader in the manufacture of Fire Protection Systems with applications in the Aerospace, Vehicle, Marine and Industrial markets. The company is investing in future expansion, and is determined to use the most up-to-date D.P. Systems especially in Manufacturing Controls, Computer Aided Design and Management Information Systems. We require a Senior D.P. executive to design and introduce systems for an IBM 4300 Mainframe which will use MVS, CICS, VSPP, VTAM, IDMS and TSO Software. Candidates, male or female, should be aged around 30 and have a degree or equivalent qualification. They should have at least 4 years' EDP experience to include at least 2 years' designing computer systems. A desirable background would be:

- Function responsibility in manufacturing involving projects of significant size.
- Working with IBM mainframes.

The benefits package includes pension fund with free life assurance, BUPA and relocation expenses if applicable. This vacancy has occurred owing to the transfer of the current job holder to another Company within our Group located in California. Please write, sending a brief CV to David Garrod, Personnel Director, (0688)

GRAVINER

Graviner Limited
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Tel: Colnbrook 3245

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Based at Surbiton the successful applicant will have an in-depth knowledge of (Editor) language on Rediffusion computer equipment. We can offer an attractive salary plus fringe benefits and security of employment.

Please contact: J. Jennings, Personnel Manager
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Telephone: 01-397 5133 (0801)

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This Division undertakes the design and supply of large computer based systems to the Middle East. In order to sustain our continued expansion and to supply the personnel necessary for such important projects, we require experienced people to fill openings in...

Project Management - Ref: 53/1
System Design - Ref: 53/2
Electronic Hardware Design - Ref: 53/3
Project Software Design - Ref: 53/4

Overseas project experience would be valuable. The successful candidates must be prepared to undertake tours of duty of twelve months or more in the Middle East.

We are prepared to negotiate attractive remuneration packages; generous relocation assistance, where necessary.

Please telephone Colin Roberts, Career Development Manager on 061-428 0771 during office hours and 061-428 0194 after 5 p.m., or write to Colin with a detailed CV, quoting appropriate reference, to: Ferranti Computer Systems Limited, Bird Hall Lane, Cheadle Heath, Stockport SK3 0XQ.

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BOX NUMBERS

Box number replies should be addressed to:

Box Number _____
c/o Computer Weekly
Quadrant House, The Quadrant,
Barton, Surrey RM2 6AS

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HOLLAND
We have a project involving the migration of PDP MUMPS Systems to VAX MUMPS and need experienced professionals with at least ten years' DP experience, six years MUMPS, a knowledge of VAX MUMPS, VMS experience, a knowledge of database methods and experience with dictionary based code generators.

UNIX AND 'C'

HOLLAND
We have recently started a UNIX division and are seeking specialists in this field. A minimum of three years' programming experience is required with at least one year of 'C' under UNIX. Some practical knowledge of device drivers would be an advantage.

INTERGRAPH SPECIALISTS

VENEZUELA & EUROPE
Requirements include a good knowledge of INTERGRAPH graphics computers plus VAX and PDP systems. The position would be that of Systems Manager but would require experience on a programmer or user level.

SCIENTIFIC/TECHNICAL ANALYST/PROGRAMMERS

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Experienced personnel are required for a variety of technical projects. Knowledge of the petroleum industry would be an advantage. Please write giving full career history to: Jeggors Computer Consultancy B.V., Nasseulean 15, 2514 JT The Hague, Netherlands. (0604)

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Do you have qualities which would qualify you for inclusion in an elite team of sales executives?

If so, Lambert computer products have a position with their sales division for a motivated person with a flexible attitude and a high degree of commitment. A proven track record in selling computer hardware systems and peripherals is mandatory. Salary is negotiable and a car will come with the package. For further details and application form please apply to: Mr. P. Burrows, European Sales Manager, Lambert Computer Products, 62 Moorfields Road, Morden, Surrey RM2 6AS. Telephone Morden 0820 7501. (0676)

Design & Consultancy

We are TecQuipment Consultants Limited, highly successful and an approved microprocessor applications consultancy under the Department of Industry MAPCON scheme. We provide design and consultancy services to Industry and Government.

Due to the expansion of our systems activities, particularly in the area of simulation systems, we now wish to augment our team by recruiting a young Software Engineer to work on the development of hardware and software packages.

The successful candidate will be fluent in both FORTRAN and PASCAL, with familiarity of UNIX operating system being advantageous, have around two years plant/process control experience and be capable of handling a project from specification to implementation. Equally important is the ability and confidence to liaise with customers at all levels.

Our standards are high, but we are quick to identify potential and short and medium term prospects within the Company are excellent.

In the first instance, please contact our Advising Consultant, **Jim Mitchell**, on **021-236 3761** (24 hour answering service) or **021-455 7653** (evenings and weekends until 9.00 pm).

"An outstanding opportunity for a young Software Engineer to work at the forefront of technology on a wide variety of applications."

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021-236 3761

NORTH
International House, 84 Deansgate,
Manchester M3 2ER
061-833 0427

BELGIUM
Avenue Louise 327,
Boite 4, 1050 Bruxelles
010 322-640 7181/771

HOLLAND
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1071 H.M. Amsterdam
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SAFE COMPUTING are committed to ambitious growth and, as a result of the enormous success of its products, has created an exciting and dynamic environment in which ability, creativity and hard work are rewarded in personal growth, as well as financially.

In order to continue this expansion and to reach broader international markets, the sales team is being increased. Applications are, therefore, invited from candidates, who have enjoyed a successful career to date in selling, for the following posts.

Senior Sales Executives
c. £25,000 + Car

Only candidates who have a computer industry background and can demonstrate sales management capability will be considered. Successful candidates will manage an internal sales and support team selling packages and project management services to clients developed, in the main, by the internal sales team.

A basic salary of **£12K to £15K** plus commission will lead to on target earnings of **c. £25,000**. A Company car will be provided, along with other benefits.

Positions are based in Birmingham and Wokingham.

Sales Executives
Micro-SafeS
c. £20,000 + Car

Sales Executives working from prospects developed mainly by external advertisements will sell Micro-SafeS to a wide market of manufacturing and process control companies.

Although, ideally candidates will have a computing background those with manufacturing or process control experience who can demonstrate selling ability will be considered.

Successful Candidates will be aged 26-35 and will be paid a basic salary of **£8,000-£10,000** plus commission, which would realise earnings in excess of **£20,000**. A Company car plus other benefits are also provided.

Positions are based in Leicester, Birmingham and Wokingham.

Internal Sales
c. £15,000 Package

The successful candidates will conduct market research, surveys and produce mail shots to identified prospects for the Senior Sales Executive to develop. A basic knowledge of computing is essential, as is professional telephone skills.

The successful candidates will receive a basic salary of **£7,500** plus commission, with potential earnings of **c. £15K**. The exceptional candidate with ability to develop sales may qualify for a Company Car.



FOR IMMEDIATE INTERVIEW TELEPHONE VIC CANTY NOW FOR FURTHER INFORMATION
021-643 5072 (OFFICE) 0908-676185 (EVENINGS & WEEKENDS)
Warwick Chambers 14 Corporation Street Birmingham B2 4BN

Communications Development

Project Leaders Software Engineers

**Berkshire
£8k-15k**

An expanding manufacturer of powerful 32-bit minicomputer systems is seeking additional Project Leaders and Programmers/Designers to join its Networking Software Development Team.

The company is committed to providing advanced communications products in the following areas:

- ★ UNIX/C
- ★ Local Area Networks
- ★ X25
- ★ File Transfer
- ★ Electronic Mail
- ★ Remote Terminals
- ★ Network Control

Benefits include a competitive salary with regular reviews, internal and external training courses and full relocation package where applicable.

For further detailed information on these positions and the company, please send a copy of your cv or telephone John De La Mère for a confidential discussion.

Ref. CW47

DATAMATICS
RECRUITMENT SERVICES

01-399 9183

Datamatics, Freepost, Surbiton, Surrey KT6 8BR

We are looking for people who want to develop their career prospects and gain valuable experience of networking, UNIX and C, an exciting combination.

Project Leaders should have experience in real-time software design and implementation. This is a predominantly technical position with scope for further managerial advancement. Previous team leadership is desirable but not essential for a candidate able to demonstrate good organisational ability.

Software Engineers should have a minimum of two years' real-time software development experience in a block-structured high-level language, eg Pascal, C, Coral, etc.

Analysts

Major worldwide
development on minis

£14,000

West London

"Everything's ready to go in the New Year but we must find two more top class analysts quickly to complete the three small project teams, otherwise they won't be in at the start." That's what the MIS Manager told me last week - if everything clicks after meeting each other next week, you can both have a happy Christmas!

From their modern well-equipped West London headquarters, my client markets and distributes worldwide the films of several of the Hollywood giants. The business is dynamic, sophisticated, growing and profitable. The resultant expansionist mood blends well with their informality and emphasis on results and personal initiative.

You will come straight into a senior role in one of the three teams designing and installing film distribution systems on minis. This means you'll need an applications programming background and at least 2 years good experience of analysis of commercial projects on minis. If you have worked on international developments, that's a distinct plus - as would be any foreign languages. Finally, don't assume you'll seem too young for this level of responsibility - you know you're not.

Make a start by calling
Richard Goldie for an informal chat on
(0992) 552552 or alternatively write
to me, enclosing a brief C.V., at
Macmillan Davies Personnel
Consultants, The Old Vaults,
Parliament Square,
Hertford SG14 1PU.

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Senior Analyst

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- ★ A minimum of 4 years experience with UNIVAC 1100 computers.
- ★ In-Depth knowledge of 1100 software products and operating software.
- ★ Experience in system sizing, configuration & performance analysis
- ★ And preferably knowledge of data communications/networking and applications software.

Besides an assured career path, our clients offer the successful applicant an excellent salary - up to **£14,000 p.a.**, a company car, generous re-location expenses, plus all the usual large company benefits.

Interested? then ring **MIKE SHYNDER** now!
061-236 7026 (office) **061-773 6128** (Evenings & Weekends)



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Logistics (Logistics Recruitment Limited)
10 Grenville Place, London NW7 4PW

Telephone 01-373 3063

Real-Time Analysts & Progs

Hants/Berks: Salaries to £12K

Real-time Analysts and Programmers, with at least two years' post graduate industrial experience, are urgently sought by a leading software consultancy. The broad range of projects they undertake, ranging from advanced defence systems through to office automation products, guarantee a varied and stimulating working environment. Your software skills should include substantial real-time programming in a block-structured language and an Assembler, combined with a knowledge of the milities offered by operating systems such as RNX, VMS or UNIX. For those applicants with man-management experience, or potential, rapid promotion is highly likely. Ref: L/46A

Graphics Software

London & Home Counties: Salaries to £11K

A number of our clients are involved in the development of increasingly user-friendly interfaces to front-end processors. They are, therefore, looking for Analysts and Programmers with experience of generating tabular, and graphical, device independent displays. Particular hardware and software skills required include fluency in one or more of PASCAL, C, FORTRAN and BASIC, and 38011 supplemented by knowledge of PDP11 or M68000 based systems. Applicants who have developed such systems utilising UNIX will be especially welcome. Ref: L/46B

'C' & UNIX Programmers

London: Salaries to £10K

A highly respected Product Supplier is currently seeking to recruit several Systems and Applications Programmers to work on its UNIX-based range of products. Applicants, aged 22-26 years, should have graduated since 1980 with a good class honours degree in a numerate subject and have at least one year's commercial or industrial experience. Very recent M.Sc. or Ph.D. candidates are also encouraged to apply particularly if their chosen subject matter was directly concerned with UNIX systems software. It is advantageous to be fluent in 'C' programming language and also offer PASCAL as a secondary language. Ref: L/46C

Technical Authors

Italy: £11K+ Overseas Allowance

An internationally renowned Systems and Software House is currently seeking additional Technical Authors for permanent career positions in Italy. Suitable applicants should have a good educational background and at least 18 months' experience in the design and writing of User documentation for either a software or hardware product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. Applicants who have participated in the production of a manual for end-users of an Office Automation System will be of particular interest to our client and will attract a salary premium. Knowledge of Italian would be an advantage but it is not a prerequisite for these positions. Ref: L/46D

Prolog and Lisp Programmers

London & Home Counties: Salaries to £13K

We have a large number of clients with requirements for Prolog and Lisp Programmers to assist in the development of expert system software packages. At least one degree in a numerate subject or Psychology is essential preferably supplemented by Postgraduate exposure to a real-time environment. Candidates with experience in the following areas will be of particular interest: object-based systems; man-machine interfacing; rule generation; operator aids and fuzzy set theory. Naturally, all our clients offer the most advanced development facilities and, where necessary, will assist with relocation expenses. Ref: L/46E

Software Q.A.

London and Thames Valley: Salaries to £14K

A market leader in the areas of office automation and information science technology requires additional Software Quality Assurance Engineers. All respondents, aged 25-35 years, should hold a least one numerate degree and have at least two years' commercial experience with real-time systems design environment. Candidates are expected to be fully au fait with international programming and systems design criteria. Your actual work content will include the instigation of scheduling and product review methods; the evaluation of in-house software requirements and systems specifications and lively participation in the production of new and updated technical documentation. For certain positions, candidates should have previous experience in software development or gained in an environment where product delivery and software releases are subject to strict deadlines. Ref: L/46F

Coral 66 Programmers

S. Home Counties: Salaries to £11K

Applications Programmers and Designers are currently required by the software development division of a leading Systems Supplier. Suitable applicants should offer a minimum of 18 months' CORAL 66 programming experience in a real-time minicomputer or microprocessor environment. Particular hardware experience is not important, but familiarity with PDP11, VAX Ferranti Argus or the GEC 4000 series would be a distinct advantage. Our client offers an excellent training programme and there will be every opportunity for successful applicants to learn new skills and progress into either a Management or Consultancy role. Ref: L/46G

Comms Designers

London and H. Counties: Salaries to £18K

A long established Systems House and Consultancy, renowned in the field of Communications, is currently seeking additional Systems Designers. Suitable applicants should be aged 25-35 years and educated to at least B.Sc. standard. You will be expected to have a thorough knowledge of at least two of the following: Communications protocols (X25, SDLC/HDLC) and ISO standards; Office automation systems and networking techniques; systems design and consultancy; familiarity with unix or any UNIX like product. Applicants who have additional knowledge of VAX VMS will be of particular interest to our client. These positions represent excellent opportunities to enhance your skills since our client is undertaking development work utilising the most advanced techniques available. Ref: L/46H

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London West Computer Recruitment

Sales Support

W. London, N. Hants to £14K + car
Leading companies marketing a range of hardware and software products require several software support staff with either a systems programming or sales/client support background. Knowledge of IBM, or DEC VAX, Data General or similar minis, and/or business micros is highly desirable. Re-location assistance. Ref. 1001.

ICL Programmers/Analysts

Barks £10-17K
Major manufacturer seeks staff at all levels with ICL2900 system software experience for a range of commercial projects. Good knowledge of VMEB and Cobol is essential; IDMS experience is highly desirable. More senior positions require project leading/management experience. Re-location assistance. Ref. 949

IBM Systems Programmers

N. and NW London £14-25K
Two leading service organisations require IBM systems programmers with minimum of 5 years experience of MVS and TSO internals plus CICS and/or IMS. More senior positions require experience of performance analysis and capacity planning. Excellent opportunities. Re-location assistance. Ref. 997

IBM A/Programmer

N/Hants £11.5K
Major financial organisation requires analyst/programmer with a good IBM Cobol background and experience of on-line database commercial or financial applications. CICS and DLI experience would be advantageous. Degree standard candidates preferred. First class career opportunity. Re-location assistance. Ref. 658

Write or telephone:

London West Computer Recruitment
Evergreen, Dautsey, Chippenham,
Wiltshire SN15 4JA
Telephone: (0249) 891114

Software Support

Wills £7-12K
A computer systems manufacturer requires analysts and programmers for pre/post sales support and software development tasks including communications and graphics utilities. Experience of Basic, micro assembler, 'C' or Pascal is required and ideally knowledge of CPM or UNIX. Excellent location. Re-location assistance. Ref. 981

HP Programmers and Operators

Thames Valley £ negotiable
Distribution and manufacturing companies require programmers with a minimum 1 year's experience of Cobol and Image, and operators with experience of multi HP3000 sites and DS 3000 communications knowledge. Ref. 882

Micro Systems Software

Wiltshire £ negotiable
Leading state-of-the-art company seeks staff experienced in systems software development for work on operating systems, language compilers and systems utilities for a wide range of commercial microprocessor based machines. Candidates must have degrees and a minimum 3 years relevant experience. Re-location assistance. Ref. 723

Systems 38 A/Project Leaders

Hants/Glos to £15K+
Vacancies exist in several well established installations for senior analyst/project leaders with commercial, financial or manufacturing backgrounds. Several years experience of IBM GSD machines including 1 year on System 38 is required. Excellent employment packages which in some cases include a car. Re-location assistance. Ref. 1002

Communications Systems

Hants to £17K
Major company developing military communications and command and control systems requires senior real time software engineers for technical/management positions. DEC, GEC, Intel machine experience is preferred. Good degrees and knowledge of high and low level languages essential. First class conditions. Re-location assistance. Ref. 746

Software Engineers

Oxon. £ negotiable
High technology company developing microprocessor-driven instrumentation has vacancies on a new software team. Experience in ATE, office automation, graphics, CAD/CAM or similar technical skills is required. Degrees or equivalent qualifications are essential. Excellent salaries. Attractive location. Re-location assistance. Ref. 1000

Process Control

Wills to £14.5K
Successful company developing process control applications for public and private sector organisations world-wide are seeking additional staff at all levels. Of particular interest is real time experience on DEC VAX or alternatively PDP 11 running under RSX 11M. Degree/HND/HNC essential. Re-location assistance. Ref. 514

Communications Systems

Midlands £ excellent
Major company developing communications systems for the defence market seeks software/hardware engineers at all levels with telecommunications experience. A defence background is desirable; degree/professional qualifications essential. Excellent conditions. Re-location assistance. Ref. 1003

DEVELOPMENT PROJECTS LONDON/HERTS BORDERS £8,500 - £13,000

As part of a large and exceptionally diversified group, our client has both the backing of a major corporation, and the breadth of experience which comes from handling the computing needs of over 60 diverse companies.

At the heart of their operation is a powerful Honeywell mainframe installation, with over 40 Honeywell L6/DPS6 mini computers supported in the field.

In line with a firm commitment to further expansion and development, a number of openings now exist for highly motivated DP professionals.

Project Leader

This is an opportunity for an experienced analyst who is ready to move into a Project Leadership role. You will lead a team of analyst/programmers in the design, development and implementation of a variety of systems, and should have a knowledge of TPS and Screenwrite, coupled with a flexible and mature approach to hard work!!

Micro Specialist

A solid commercial background, a broad appreciation of business methods in general, plus the ability to configure and install micro based systems are the essential requirements for this interesting and challenging position. As you will be dealing with clients at all levels, you should have good communication skills, both written and verbal.

Analyst: DM4/TP

An ambitious and conscientious young analyst is required. You will join a team responsible for the development and maintenance of a variety of complex systems relating to tracking applications. You will be capable of taking a project through to implementation, and should have a working knowledge of DM4/TP.

Analyst/Programmers:

Honeywell L6/DPS6

The successful applicants will have 2 years or more COBOL experience, gained in a Honeywell L6/DPS6 environment. Enthusiastic self starters are needed, capable of liaising with clients and management at all levels.

For more information about these positions, please contact Liz Jewell on: 01-734 7349 during office hours or on 01-223 0712 evenings and weekends, or send the coupon to Warwick Woodward, Freepost 37, LONDON W1E 6UZ (No stamp required).

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★ ★ ★

The management style encourages and rewards effort and initiative. Previous experience in the travel industry and TOURPAS on-line reservation system would be considered advantageous but by no means essential. A solid understanding of how efficient computer operations contribute to business effectiveness will be a major deciding factor.

For an initial interview and further discussion regarding these opportunities contact Myriad London quoting reference C4/0112.

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We are looking for several hardware and software specialists to work on the systems development and support of this exciting new product. Applicants should be self-motivated, highly qualified professionals with a proven track record in distributed processing and data communications. You should have 3-5 years experience in at least three of the following:

- *Microprocessor systems software development, preferably on 8086s
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NEED OR WELL BE RIGHT?

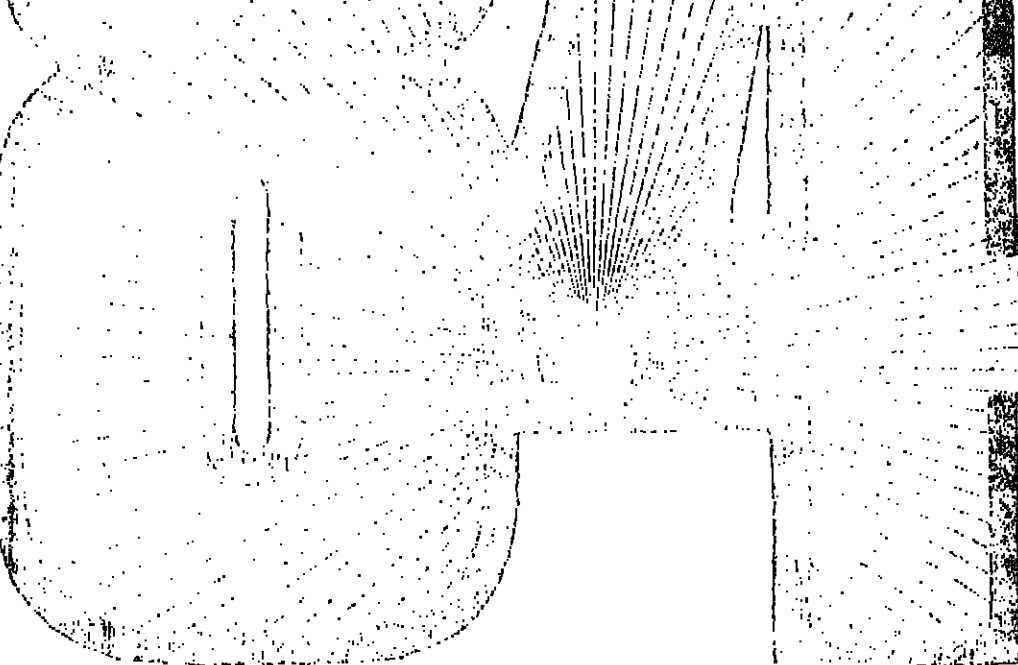
No—there are always limitless opportunities for forward looking people, especially in the field of computers. Unquestionably Saudi Arabia is high amongst the world's most rapidly developing regions. For example, our client has made massive continuous investment in the field of EDP. Currently their State-Of-The-Art computer systems include the IBM series 3033 and 3081 (with the 4300 series for outlying applications) and a wide range of mini and micro computers.

Within the computer services area a new human resources system is currently being created. And to ensure the continued success of this long-term commitment, recruitment of computer professionals with the following skills is essential:

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LOCATION: CITY JA388/1

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LOCATION: UK & OVERSEAS JA388/3

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LOCATION: CITY JA388/4

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IBM 303X MVS PL1 TOTAL MANTIS	PROGS	NWEST/MIDLANDS	VE.	IBM CICS DL1 UFO COBOL	ANAL/PROGS	MIDDX.	DV.
PRIME 750 PRIMOS FORTRAN	ANAL/PROGS			IBM DOS/VSE CICS DL1 COBOL	ANAL/PROGS	ALL AREAS	DV.
	SYSTEMS PROGS	NWEST	VE.	IBM INQUIRE DATABASE	ANAL/PROGS	LONDON	DV.
H.P. 1000 FORTRAN	PROGS	NWEST	VE.	IBM IMS DB/DC ADF COBOL	ANAL/PROGS	ALL AREAS	DV/N.G.
IBM ADABAS/NATURAL	PROG	ALL AREAS	VE.	IBM 8100 DPPX COBOL	ANAL/PROGS	LONDON	DV.
ICL NORTH				IBM MVS	SYSTEMS PROGS	ALL AREAS	DV.
ICL 2900 VME/B	TEAM LEADER/ ANAL & PROGS	N.EAST	CT.	UNIVAC 1100 JSP COBOL	PROGS	HANTS	N.G.
ICL 2900 VME IDMS TPMS DDS	IMPLEMENTORS	NWEST	CT.	UNIVAC 1100 DMS TIP DPS COBOL	ANAL/PROGS	ALL AREAS	N.G.
ICL 2900 VME IDMS TPMS DDS	SYSTEMS TRIALLISTS	NWEST	CT.	UNIVAC 1100	OPERATORS	LONDON/BRISTOL	N.G.
	IDMS CONSULTANTS			TANDEM COBOL SCOBOL	PROGS	LONDON	N.G.
	VME CONSULTANTS	NWEST	CT.	TANDEM COBOL TAL	ANAL/PROGS	LONDON	N.G.
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ICL 2900 VME IDMS TPMS	SIZING & PERFORMANCE SPECIALIST	NWEST	CT.	SCREENWRITE			
ICL 2900 IDMS TPMS X25	PROJECT MANAGER/ CONSULTANTS	NWEST	CT.	HONEYWELL DP58 DM4 TP COBOL	ANAL/PROGS	N. LONDON	DV.
ICL 2900 VME IDMSX TPMS	SIZING CONSULTANTS/ ANAL/PROGRAMMERS/ DATABASE DESIGNER/ SYSTEMS DESIGNER	MIDLANDS	CT.	BURROUGHS CMS ± LINC COBOL	PROGS	LONDON	N.G.
ICL SOUTH				MINIS/MICROS PASCAL	ANAL/PROGS	LONDON	N.G.
ICL 2900 VME IDMSX TPMS COBOL 3	ANAL/PROGS	SOUTH	T.C.	IBM SYSTEM 38 RPG III	ANAL/PROG	PARIS	N.C.
ICL SYSTEM 25 ASSEMBLER	6 PROGS	SOUTH	T.C.	IBM SYSTEM 38 RPG III	BANKING ANALYST	LONDON	N.C.
ICL 2900 VME	2 SIZING CONSULTANTS	SOUTH	T.C.	IBM SYSTEM 38 RPG III	ANAL/PROGS	ALL AREAS	N.C.
ICL 2900 IDMS	2 DATABASE DESIGNERS/ IFO STANDARDS	SOUTH	T.C.	IBM SYSTEM 38 RPG III	OPS ANALYST	JEDDAH	N.C.
ICL DR5	COMMS. CONSULTANT	LONDON	T.C.	IBM SYSTEM 38 RPG III	ANAL/PROGS	JEDDAH	N.C.
SCIENTIFIC/TECHNICAL							
PDP VAX FERRANTI GEC	SOFTWARE ENG.	ALL AREAS	M.A.C.				
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IBM ANALYST/PROGRAMMERS

CITY £11,000-£13,000
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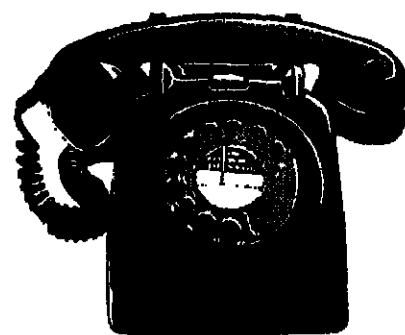
IBM COBOL ANALYST/PROGRAMMERS

ESSEX £9,000-£11,000
Due to further computerisation of financial systems, this Essex-based manufacturing company has a requirement for IBM Analyst/Programmers. Applicants should possess 18 months' COBOL experience, training as required in CICS DL/1 and Analysis. Excellent career prospects and occasional overseas travel. Ref: M2100

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Responsible for negotiating all sales and distribution deals throughout the UK, you'll need proven sales experience in a DP related field, preferably micros or communications networks. Aged 25-40, you'll either be in management already and looking for a more progressive working environment, or now set to make the next logical step up from a purely sales role.

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LOCATION: OPPORTUNITIES THROUGHOUT THE UK DT108/1

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Candidates with more experience and a proven record of success can expect to move quickly into major territories. There is also an opportunity for an exceptional candidate to take up a management position almost immediately.

LOCATION: UK LOCATIONS WITH POSSIBLE OVERSEAS TRAVEL DT108/2



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Our head office is in Worcester but our and your potential is worldwide.

LOCATION: WORCESTER DT108/3



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Candidates, preferably 35-40 with solid experience in selling a wide range of financial and commercial software packages, you should have an excellent track record, preferably gained in a similar role, and a proven ability to develop and manage a sales team.

The successful candidate will be responsible for the overall management of the sales team and will be expected to achieve a proven ability to develop and manage a sales team.

LOCATION: WORCESTER DT108/4

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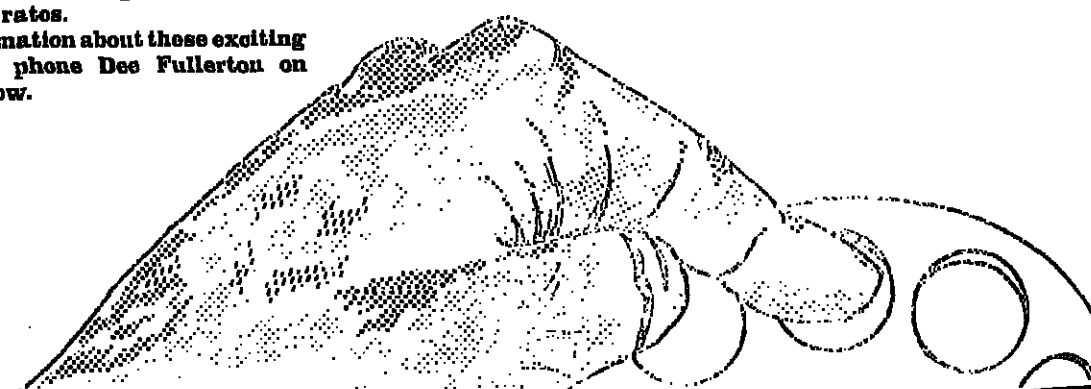
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London & Midlands: Salaries to £30K (O.T.E.)

PROFILE: **Logistix** is the U.K. market leader in networking and UNIX based systems has recently negotiated exclusive **CAD/LINC** distribution rights for U.K. and Ireland. The CAD/LINC product is revolutionary and offers:

- Unrivalled combination of price/performance.
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- CIMCAM based upon CAD/CENTRE CNC software.
- Input via a three button mouse with icons and scrolling text display.

SENIOR SALES EXECUTIVES: To capitalise on this unique product line, Senior Sales Executives based in the Midlands or Central London are urgently sought. Successful candidates will, most likely, currently be selling integrated CAD/CAM systems to large and multi-site users. Above all, you must demonstrate a high level of achievement and commitment over a continuous period of at least 3 years and be capable of our target earnings of at least £30,000.

SENIOR APPLICATIONS ENGINEERS: Highly competent CAD/CAM, Senior Applications Engineers with FORTRAN/Post Processor programming experience are sought with a background in manufacturing industry. Since you will be expected to offer in-depth technical support to new and existing users throughout the Company's sales areas, good inter-personal communication skills and mobility are essential.

REWARDS: All positions carry a Company car or car allowance and total earnings will be limited only by ability. On appointment all new employees will receive extensive product training and thereafter on a six monthly basis.

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Are you looking for a challenging position? This International company based in Central London is looking for a confident individual to run a Customer Support Team. Applicants should have a minimum of FIVE YEARS' in Data Processing with both a good technical knowledge of MVS COBOL and JCL, and a sound commercial background. Additional experience in Telecommunications would be advantageous as you will be responsible for Telecomms. Network throughout Europe.

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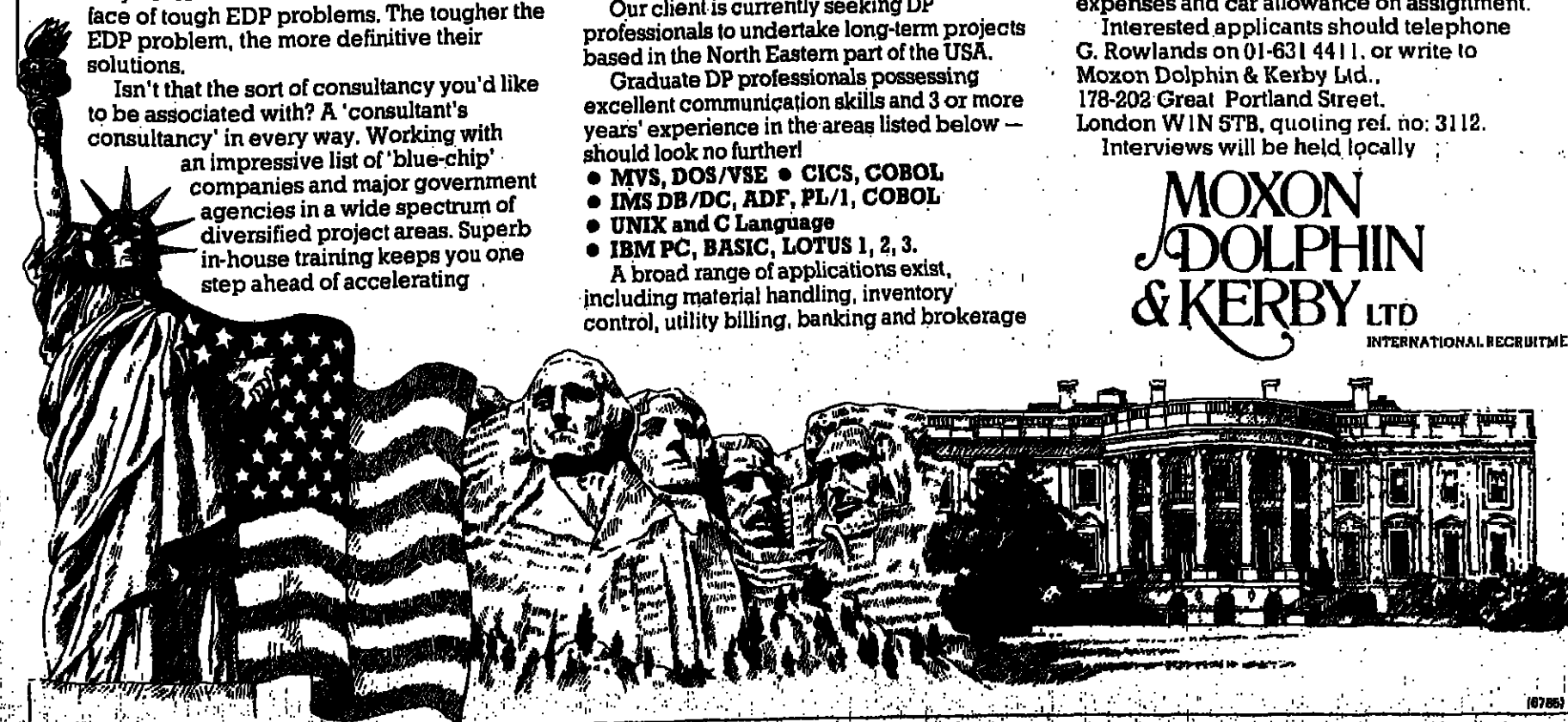
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The Commission is also seeking:

V. Scientific staff

for the following areas (ref. 9PT/V)

- The computer language ADA and software technology;
- Standardization in the data-processing and telecommunications fields;
- European-wide information systems.

Duties: to manage and monitor programmes.

Qualifications required: 1. Age: between 35 and 50 (approximately) for the posts described under I above. 2. Scientific training supported by a university degree, for the posts described under II and III above. 3. Scientific training supported by a university degree, for the posts described under IV above. 4. Technical training (to advanced secondary level) for posts described under V above. 5. Higher scientific or technical education supported by a university degree, for the posts described under V above. 6. At least five years' experience in a post similar to that applied for. 7. Knowledge of at least two Community languages. 8. Applicants must be nationals of one of the ten Member States.

Remuneration is generous, and commensurate with the level of each post (temporary contract). Candidates placed on the reserve list: the first positions could be filled during the first half of 1984. The posts are in Brussels. It is expected that successful applicants will take up duty early in 1984.

If you are interested, send a detailed curriculum vitae, indicating the specialist area and reference number of the post for which you wish to apply to the following address:

Commission of the European Communities,
Recruitment Division, 200 rue de la Loi, B-1049 BRUSSELS.
Applications must be postmarked no later than 20/12/1983.

VAX/PDP 11 BIRMINGHAM

Our client, a Division of one of the world's largest high-technology companies, is seeking top-class systems people with sound DEC experience to enhance their progressive Data Processing team. The successful candidates will be responsible for the development and implementation of a variety of Commercial applications. The salaries reflect the importance of these positions and the benefits are those expected from a leading International Corporation.

PROJECT LEADER c£13K

In addition to a relevant qualification, the company is seeking applicants who have had at least 4 years Data Processing experience with one year in a supervisory role. A systems bias is required plus substantial programming experience. Reporting to the Data Processing Manager, you will liaise with 5 Analysts/Programmers. It is unlikely that candidates under the age of 30 will have the required experience.

ANALYST/PROGRAMMER to £10K

You will possess the necessary ability gained as a direct result of at least 5 years DP experience. Ideally, the company requires VAX exposure, however, strong PDP-11 candidates will be considered favourably. You will also have experience of database and text processing applications as well as BASIC and/or MACRO languages. This position offers genuine career progression.

Call Clare Evans on 021-455 7811 (office) 0905 358581 (home) or
send full CV to Search Dynamics Limited
Edgobaston House, 3 Duchess Place,
Hagley Road, Birmingham B16 8NH

Search Dynamics
International Recruitment

PERMANENT

Analyst/Programmer London N1 to £10,000
Knowledge of COBOL and a minimum of 12 months' experience on a Honeywell level 6 will qualify you for entry into an exciting and demanding environment for this international, manufacturing company. Ref: 8127/H/P

Customer Support Programmers Herts £8,500-£12,000
Minimum one year's experience on system software relating to data communications and general information systems will enable you to enter the highly interesting and developing world of this major international group. Ref: 8282/H/P

Systems Programmer North London circa £12,000
Leading manufacturing company requires someone to install an IBM 4331. In-depth knowledge of OS/VS1, CICS and BOSCOE together with sound telecommunications experience are pre-requisites. This is an outstanding opportunity for the right person. Ref: 8284/H/P

Analyst/Programmer Hants £9,000
Our client, a nationally known publisher seeks a go-ahead A/P with minimum 18 months' experience on an ME29 utilising TME and COBOL. Full relocation package available. Ref: 8285/H/P
Contact Haydn Parry at KPG.

Analyst/Programmer City to £14,000
Experienced graduate required to work on the development of relational database systems (INFO) using FORTRAN and BASIC. Knowledge of Petro-chem or process industry an advantage. Ref: 8286/M/J

Senior Programmer Middlesex to £11,000
Central support function of major national group require a senior programmer to lead a small team. Knowledge of COBOL, (PLAN), BASIC and RPG II/III would benefit. Ref: 8288/M/J

Senior Analyst/Programmer West of London £13,000+Car
An experienced analyst/programmer with proficiency in COBOL and RPG II on IBM mainframes looking for an exciting future with a "hi-tech" manufacturer should look no further than this excellent opportunity. Ref: 8289/M/J

Manager - Analysis & Design West London £17,000+Car
To direct and co-ordinate the investigation, design and implementation of new systems, and liaise with senior management to establish systems and procedures, you should have at least five years' experience. Ref: 8287/M/J
Contact David Mason-Johns at KPG or on 01-747 0969 (evenings and weekends).

Kuwait - M/status Free Furn accom./Flights/BUPA/etc. £neg. tax free
DP Manager - Major Co ME29 site. Tech. Mngt/Sys. Dev Mngt - MODCOMP Spec.
Supervisor - DP person + two years' Microfiche/Film exp. An/Proge. IBM/MVS exp for major commercial Co. Banking or insurance experience preferred.

Programmers to Senior Analyst Programmers £ neg + exc. pkge.
Kent/Essex, Berkshire/Buckinghamshire Borders
Projects expansion on ICL/COBOL site. One or more of the following skills required: VME/TPS/IMS/DME/PLAN/FILE/TAB MAXIMOP/GE0 II/RAPPORT.

SW/HW Systems Engineers Sussex/Kent Border £ neg. + exc. pkge.
Two to six years of either CORAL/ADA/PASCAL/FORTRAN. Young company specialising in design and development of electronics and avionics micro based systems.

Prog./Tec. Support Person Central & S.E. London £12K neg.
Good COBOL required. Experience on IBM, UNIVAC or ICL. To write information retrieval packages. Ensure programming controls remain effective, 25% of time preparing/providing training courses. Contact Diane Fabregas at KPG or on 785 8714 (evenings and weekends).

Programmer Surrey £10,000 + exc. benefits
Major brand name manufacturer running IBM 4331 & S/38, requires a programmer to work on mainframe development in financial/corporate areas. Two years' COBOL or PL/1 under CICS or SHADOW. Ref: 8273/CW

Cobol/Assembler Programmers City £11,000 + bonuses
High-flying programmers looking to move, via database applications, into analysis should apply immediately to join this major financial institution. Three years' COBOL, or ASSEMBLER with COBOL is required. Ref: 8259/CW

Senior Programmer City £11,000
A programmer with over two years' RPG II on S/34 required for development/support/enhancements of financial applications. Looking to move into analysis you will gain experience on 4300 COBOL/CICS plus international travel. Ref: 8278/CW

Systems Analyst Surrey £12,000
Systems Analyst's in their mid-twenties with experience of VME 2900 in a manufacturing/accounting environment would be of great interest to this electronics company. Ref: 8266/CW
Contact Peter Hennessey at KPG

PERMANENT OPERATIONS

DOS/VSE West London £8,750
Expanding company have an urgent requirement for a Senior Operator with a minimum of four years' VM/DOS/VSE. Excellent prospects and benefits for the right candidate. Ref: 811

MVS/JES2 Oxford £11,000
Subsidiary of large manufacturer have an opening for an Operations Analyst with a minimum of two years in a similar position with good MVS/JES2 and JCL writing. Ref: 810

MVS/JES2 City to £9,500
International financial organisation are recruiting a Senior Operator with excellent MVS/JES2 experience and associated IBM utilities, three shift system, excellent prospects for the right person. Ref: 818
Contact Jayne Longmore on 01-848 5922 or 01-894 1928 (evenings).

KPG
01-948 5922

KPG Computer Support Services Limited
Cobden House, Park Lane, Richmond, Surrey, TW9 2RA



AID for RECRUITMENT

AID EMPLOYMENT LTD

29/32 CENTRAL CHAMBERS
EALING BROADWAY
LONDON W5 2NR

DP MANAGER CIRCA £15K + CAR
Good man manager required to run Honeywell installation in Barbours. Age 30-45.

IBM SYSTEMS PROGRAMMERS to £17K + CAR
With Database knowledge.

SOFTWARE PRE-SALES SUPPORT to £17K + CAR
VM/MS TP knowledge required. Based in S. East to support sales in UK and Europe.

ANALYST EXCELLENT £ neg.
Two years' IBM COBOL, CICS TP experience required for bank in London. Usual banking benefits.

ANALYST/PROGRAMMER £10-£12K
IBM ANAL/PROG with two to three years' experience required. Company with retreat in Micron and on-line environment. Based London.

RPG III/III PROGRAMMERS Circa £10K
For west London sites.

PROGRAMMER £9.5-£10.5K
12-18 months IBM PL/1/MS on-line experience. Degree education, based in London.

SYSTEMS ANALYST £ neg.
RPG in London usual banking benefits.

ICL PROGRAMMER Circa £9K
COBOL, Dartmouth.

CONTRACT
PERSONEL MER replaces Fortran Programmer immediate start. WEST LONDON/MIDDX.

OPERATIONS Circa £9K
IBM VM DOS-VSE
Three years' experience.

IBM DOS VSE OPERATORS LONDON Circa 6.5K
6-12 months' experience VM knowledge preferred.

ICL ME29 to £7.8K
Operators West London/Midx.

SHIFT MANAGER WEST LONDON to £12K
To "Man Manager" shift comprising, shift leader and three operators excellent package.

PUBLIC SECTOR APPOINTMENTS

LONDON BOROUGH OF BRENT & EALING
JOINT COMPUTER INSTALLATION
BASED AT ACTON TOWN HALL
PROJECT MANAGER

Ref: 055 FD
£12,684-£13,992 p.a. incl.
Applicants for the above post should have at least five years' experience in systems and programming and the ability to lead a team of analysts and programmers looking after existing and new systems for designated areas of each Council's activity. The installation has an IBM 308E running under VM and DOS/VSE. Software includes CICS, DL/I, Easytrieve, on-line librarian, APL, MANTIS, etc.

SOFTWARE PROGRAMMER

Ref: 056 FD
£10,542-£11,649 p.a. incl.
To join a team of three software programmers, under the Systems Programmer. Maintaining all software and operating systems. Must be experienced in DOS/VSE with knowledge of Assembler and CICS.

TECHNICAL SUPPORT OFFICER

Ref: 057 FD
£10,542-£11,649 p.a. incl.
This is a new (additional) post and will assist the Technical Support Section in the education of DP Section and Users. User support in personal computing, and general work in the performance/productivity area of the division.

This post would suit an experienced programmer who wants to become involved in more general computing and user contact. The hardware is 3083E 8 MB, 3360 discs, 3420 tape units. The software includes VM/SP, DOS/VSE, CICS, DL/I, Assembler, COBOL, MANTIS, Easytrieve, APL, ADPS, Fortran.

Closing date for above posts 9.12.83.
Please quote appropriate reference number.
Application forms obtainable from The Personnel Office, Room A.204, Town Hall Annex, New Broadway, Ealing W5 2BY. Telephone: 01-840 1995 (24 hour service).

UNIVERSITY COLLEGE LONDON
Department of Computer Science
Research Assistantships

The department has research assistantship vacancies on grant-funded projects in the following areas:

1. Computer Networks
The successful candidate will be involved in the development of software to monitor the performance of computer networks and will assist in the collection and interpretation of the measurements. A relevant degree is required and experience with UNIX and C would be highly desirable. Some experience of programming in assembly languages would be an asset.

2. Distributed Database
This work consists of a critical survey of existing distributed database architectures followed by the implementation of a prototype system. A relevant degree is required and research experience in the database area will be a distinct advantage.

Applicants, including a full c.v., together with the names of two referees, should be sent no later than 22 December, 1983, to: The Secretary, Department of Computer Science, University College London, Gower Street, London WC1E 6BT.

Salary scale £7,100-£10,250 per annum plus £1,185 per annum London Allowance.

Applications are invited for the above post within the Computing Centre.

APPLICATIONS PROGRAMMER

The Centre operates in ICL 2977 and 2978 under VM/SP, together with a VAX 11/780 and attached array processor. Wide and local area networks exist, providing links throughout the campus, as well as to the national computing facilities at Manchester and the Midlands Universities Network and PSS.

The successful candidate will be working in the general area of applications software development, user training and software advisory services. Candidates should have good programming experience in a number of programming languages (preferably from within the group of Fortran, Pascal and Algol 68). A good knowledge of engineering software development would be an advantage.

Applicants should normally have a good honours degree or equivalent experience. Starting salary will be in the range £8,310-£9,090 (B1) or £9,090-£9,875 (B2) per annum, according to level of experience.

Application forms and further particulars, returnable not later than 13 December 1983, may be obtained from the Staff Appointments Office, University of Nottingham, University Park, Nottingham NG7 2RD. Please quote Ref. No. 895.

Box Number
c/o Computer Weekly
Quadrant House
The Quadrant
Barnet, Surrey SM2 5AS

SYSTEMS PROGRAMMERS
MVS or IMS

LOLA provides a central computer service for London Local Authorities based on corporate on-line IMS databases. We currently run a 24 megabyte 3081D on MVS/SP1.3.2 supporting an extensive network of over 350 IMS terminals and a growing population of TSO/APL/ISPF users.

There are now two vacancies within technical support which offer the opportunity to develop your current skills and broaden your knowledge in a large IBM installation.

£7,788-£11,136

Salary within the above range will be according to experience.

For appointment at the senior level you should have a good working knowledge of Assembler and at least three years' relevant experience in either MVS or IMS (DB/DC). Ideally you will be familiar with SMP and with some of the following: TSO/ISPF, VSAM, VTAM, LIBRARIAN, PL/I.

Applications will also be considered from competent Applications Programmers who can demonstrate their technical potential in an IBM environment and now wish to enter systems programming.

For a discussion of either of these opportunities phone Dave Goodall during office hours on extension 277. Further details and an application form may be obtained from:

Mrs Beryl Dorrington
LOLA
Tower Point North
Sydney Road
Enfield, Middx EN2 6UE
Tel: 01-366 6611. Ext. 276

LOLA

BOX NUMBERS

Box number replies should be addressed to:

Box Number
c/o Computer Weekly
Quadrant House
The Quadrant
Barnet, Surrey SM2 5AS

WESSEX
REGIONAL HEALTH AUTHORITY**Project Manager****Salary Scale 14 - £9,404-£11,434**

An experienced person is required to manage a team of systems designers/programmers responsible for all financial applications within the Region including the maintenance of standard payroll and accounting systems and the development and implementation of an on-line creditor payments system.

Wessex Regional Health Authority comprises ten Districts covering Hampshire, Dorset, Wiltshire and the Isle of Wight and has ICL 2903/ME28 minicomputers and ICL DRS/2800 systems linking to an ICL 2580 mainframe running under DMS/GEOS 3 in the Regional Computer Centre established in Winchester.

Applicants, male or female, should have proven experience in management, system design and programming work and should be able to communicate with staff and users at all levels. A knowledge of ICL computers, COBOL, GL, THE, SDM and NCC Standards would be an advantage.

Please write or telephone for an application form and full details to: Personnel Officer, Wessex Regional Health Authority, Higheroft, Romsey Road, Winchester, Hants SO2 5DH. Tel. No.: Winchester (0962) 63511. Ext. 471.

Closing date: 16th December, 1983.

UNIVERSITY COLLEGE CARDIFF
COMPUTING CENTRE

Vacancies exist for the following posts in the computing centre. The successful candidate will be responsible for the day-to-day operation of the system and will be involved in the development of the system and in the provision of training to staff and users. The successful candidate will be responsible for the day-to-day operation of the system and will be involved in the development of the system and in the provision of training to staff and users.

The salary will be on the OR Scale H (£11,100-£14,125) or Scale I (£14,125-£16,825) depending on experience. The successful candidate will be responsible for the day-to-day operation of the system and will be involved in the development of the system and in the provision of training to staff and users.

CHIEF EXECUTIVES DEPARTMENT
Senior Programmer
£11,079-£12,186 pa (incl. LWA)

Camden is one of the largest inner London authorities and is developing a wide range of applications based on a super dual 2888 using the latest software tools including IDMS and TPMS.

Working in Project Teams, Senior Programmers will be involved in the development of a variety of applications and will also be expected to perform some supervisory duties. Opportunities for training and working in a systems role will be provided.

A minimum of four years in Data Processing is required of which three years must have been spent in programming. Knowledge of COBOL, 2900 and SCL is essential and experience of Structured Programming, TP, IDMS or systems work would be an advantage.

Application form from and to be returned to: Departmental Staffing Officer, Room 207, Town Hall, Euston Road, NW1 2RU or telephone 01-837 8988 (Anafone) quoting ref no IC/418/CW. Closing date: 16 December 1983.

CAMDEN

equal opportunity employer

Applicants are considered on the basis of their suitability for the post, regardless of sex, racial origin, marital status, disability or age. All posts are open for job-sharing.

ANALYST/PROGRAMMER

The successful applicant will be expected to design new systems and be experienced in the use of REXX, COBOL, THE, and IBM/VS/SP1.3.2. The post offers not only a rewarding career but also the opportunity to live in one of the most attractive areas of the City. The successful candidate will be responsible for the day-to-day operation of the system and will be involved in the development of the system and in the provision of training to staff and users.

COMPUTER DEVELOPMENT OFFICER

£10,809 to £11,973 (inclusive)
Ref. CE.17

This new post, within the Personnel and Management Services Division, has been created to advise upon and develop the Council's existing and future requirements for computing and information processing technology. The current situation is that the Council is part of a consortium but has recently leased a C.M.C. Reality 6420 to assist the Housing Services Department with D.L.O. and Lettings. The initial duties will be involved in the production of a computing strategy statement as to the Council's future role within the consortium.

Essential Requirement for Applicants

- Minimum five years' experience in the computing and information processing field.
- Programming and systems analysis experience.

Desirable Requirements for Applicants

- Local Government experience.
- British Computer Society qualification.

Elmbridge is situated in an attractive part of Surrey within easy reach of London. Removal expenses, generous resettlement allowances are payable and temporary accommodation may be available.

For further details and an application form contact Elmbridge Borough Council, Personnel Section, Town Hall, New Zealand Avenue, Walton-on-Thames, or telephone Walton-on-Thames 228844 Ext. 2 (answerphone). Closing date - 19 December 1983.

ELMBRIDGE

MANCHESTER POLYTECHNIC
Computing Services Department

The Polytechnic has recently installed a large interactive computer system for teaching purposes, based on a PRIME 550 and 750. The system and administrative systems are supported via a CODEX communications network.

To develop the use and applications of these systems, new key appointments are being made in the Computing Services Department.

1. PRINCIPAL ASSISTANT - PROGRAM DESIGN

Salary Scale P03 £12,364-£12,728
Responsible directly to the Head of Department for the programming support function within the Department for the whole Polytechnic. Ref. No. 5/84.

2. PRINCIPAL ASSISTANT - OPERATIONS

Salary Scale P03 £12,364-£12,728
Responsible directly to the Head of Department for the operations support function within the Department for the whole Polytechnic. Ref. No. 5/84.

3. SYSTEMS CONTROLLER

Salary Scale P01 £9,451-£10,002
Develop and maintain the operating system and communications network to support users' needs. Ref. No. 5/86.

Applicants for all posts should be of graduate level, preferably with experience of educational institutions and of PRIME computers. The successful candidate will be responsible for the day-to-day operation of the system and will be involved in the development of the system and in the provision of training to staff and users.

PUBLIC SECTOR APPOINTMENTS

There are few projects in computing that can match the variety provided by Birmingham City Council. We have the equipment to meet the challenge with an IBM 3033 and over 400 terminals.

Birmingham City Council, the largest city authority in England, serves a population of over 1 million with a diverse commercial and industrial community. The City Treasurer's Department has responsibility for over £700m expenditure p.a. on capital and revenue account and playing a vital role in the Department's activities is the purpose built Computer Centre, which is located close to the City centre. The Centre operates an IBM 3033 with 13,000 megabytes of backing store to support over 400 terminals with a further 200 planned.

An IBM 3081, with an increase in backing store to give a total of 30,000 megabytes will be installed next year to cater for the development of new applications.

We now require experienced computer professionals to work on a wide variety of applications, including GL80 (new financial information system) Qpac (Payroll), Income, Social Services' Clients Record System, Education Careers Service, Personnel, and Rates.

Good terms of employment include flexible working hours based on 36½ hour week, assistance with relocation in approved circumstances. For application form candidates should apply to:

City Treasurer (Ref: PSO), Council House, Birmingham B3 3AB.
Telephone: 021-235 2993.

Canvassing will disqualify. An equal opportunity employer.

BIRMINGHAM CITY COUNCIL**SYSTEMS ANALYSTS**
(within range £9,060-£12,408) (Ref: CD7)

To develop applications (financial and non financial) and work with the minimum of supervision. It is unlikely that the persons appointed will have less than three years' systems experience.

PROGRAMMERS
(within range £5,640-£9,660) (Ref: CD10)

Applicants should have experience of designing, writing and testing COBOL programs/transactions in an OS/MVS environment, preferably using IMS.

LONDON BOROUGH OF HAVERING
Housing Department
HOUSING PROGRAMMER

Grade APTC Scale 3/4
Salary £8,237-£7,802 inclusive

This is a key post in a progressive Housing Department with a considerable commitment to the use of High Technology in the Housing Service.

The Department has a network of computer equipment based on a central DEC POP 11/44 programmed in Basic, and peripheral Olivetti TC 800s programmed in Assembler. Most aspects of Housing Management for the Council's 17,500 dwellings are computerised and the successful candidate will be expected to deal with the maintenance of existing software and new software developments in housing and associated fields.

Ideally the successful candidate will have some experience of Basic + running on a DEC Series 11 mini under RSTS/E, together with an appreciation of the DEC and Olivetti hardware and on-line real time communications. Candidates should be able to work under pressure and have had some experience in business systems, database systems and/or property management systems. Suitable training will be given if necessary.

Application forms and job description available from the Housing Surveyor, County Hall, Chichester, or telephone (0243) 777973 quoting reference SQ.102.

Closing date: Monday, 19th December, 1983.

West Sussex
COUNTY COUNCILUNIVERSITY OF STRATHCLYDE
Computer Centre
PRINCIPAL COMPUTING OFFICER

Applications are invited from graduates for a post of Principal Computer Officer. Candidates for this senior post should have experience of several of the major activities of the Centre, viz maintenance and development of mainframe operating systems and software, the acquisition and use of applications programs, local and wide area communications, computer graphics, the use of microcomputers and microprocessors, and the provision of a range of user services including education and advisory/library services.

Salary will be on Grade III Scale for Officer/Relief Staff (£13,515-£16,825 p.a.) - USS benefit.

Further details and application forms (Ref: OR16/83) may be obtained from the Academic Staff Office, McCance Building, 16 Richmond Street, Glasgow G1 1XQ. Closing date for applications: 9 January, 1984.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE
UNIVERSITY OF LONDON
Kestel Street, London WC1E 7HT**STATISTICAL AND PROGRAMMING ASSISTANT**

A statistical and programming assistant is required in the Department of Epidemiology for a period of up to 18 months to work as part of a team concerned with two projects: the evaluation of well-being in multi-centre European trials of a new anti-hypertensive drug, and determination of the factors influencing survival in non-malignant breast cancer patients. The work will involve the use of standard statistical packages and the post is suitable for graduates with little previous experience as well as those with more experience who will be able to make an individual contribution to the research work.

Salary in the range £7,486 to £9,716 depending on experience and qualifications. Apply in writing to the Assistant Secretary giving full career details and the names and addresses of two referees. Closing date: 16 December 1983.

OXFORD POLYTECHNIC
COMPUTER CENTRE

Ref: 09/16
Applications are invited for the post of Computer Operator. The successful applicant will become a member of a team of operators responsible for the Centre's computer.

Equipment installed includes five Prime processors, running under PRIMOS and PRIME/NET supporting 160 terminals, together with a network of 11 Apollo Domain mini computers, and a variety of micro computer systems. Suitable experienced applicants should have a good educational background, and will probably have an appropriate post A qualification. A good working system is in operation and the salary will be within the grade:

Salary Scale 3 £6,840-£9,338 + 14% shift allowance

The closing date for this post is December 16, 1983.

For further details and application forms please apply to: Miss M. Egan, Oxford Polytechnic, Headington, Oxford OX3 9JF. Oxford (0865) 8777.

Bristol Polytechnic
Department of Computer Studies and Mathematics
Lecturer II/Senior Lecturer in Information Systems

Ref No L162
Applications are invited from graduates, preferably with a relevant higher degree, for a lectureship in Information Systems. The successful candidate will contribute to research and curriculum development and to the teaching of Information Systems, both theory and practice, on internal and external courses. Candidates should have an understanding of behaviour in organisations, in addition to computing, as a basis for the construction of suitable models of user systems.

Information Systems is a major subject within the Department's degree and sub-degree teaching programme. In service courses (particularly in the Faculty of Accounting, Business and Management) and features in a major Bristol Polytechnic Open Tech contract involving Playway Marine.

SALARY SCALE: L11 £7,218-£10,883 (incl.) - £11,880 per annum
SL £10,883-£12,552 (incl.) - £12,443 per annum

The appointment will be made on the appropriate scale according to relevant previous experience. (Progression from the SL scale to the SL scale is in accordance with the provisions of the Brunel Further Education Regulations.)

For further details and an application form, to be returned by 16 December, 1983, please contact the Personnel Office, Bristol Polytechnic, Coltham Lane, Frenchay, Bristol or ring Bristol 689251, ext. 218 or 217.

Please quote reference number L162 in all communications

Inner London Education Authority
BRIXTON COLLEGE
58 Brixton Hill
Business Studies Department

PART-TIME TEACHERS OF COMPUTING

Required to teach Computer appreciation to young people on daytime courses up to a maximum of 12 hours per week. Hourly rate of pay £5.57 (inclusive of Inner London Allowance).

Please telephone on 01-737 1168 for further details

ILEA is an equal opportunities employer

TESSIDE POLYTECHNIC
COMPUTER CENTRE

Post Reference No. P.C.U.08
Grade: P01(c), Salary: £10,838-£11,703 per annum.

To lead a team of programmer/analysts in the design and production of software for the Polytechnic. This software is being written using a powerful and sophisticated management information system on a Prime 750 computer. The post offers an ideal opportunity for a systems analyst or experienced programmer to further their career by moving into a management position in one of the leading Computer Centres in the educational field.

Application forms and further particulars from: The Personnel Office, Tessaide Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA. Telephone: Middlesbrough (0412) 210121. Extension 4114. Closing date for applications: 9th December, 1983.

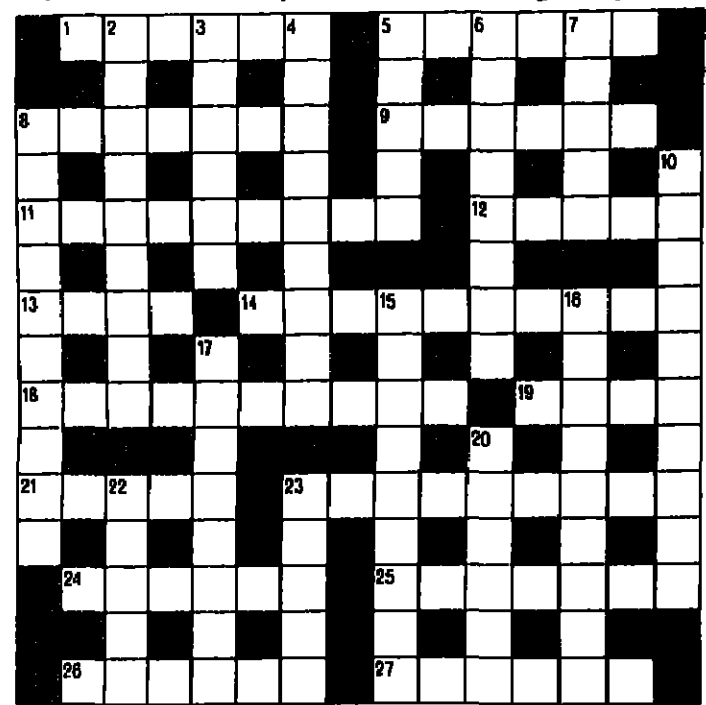
FOR CLASSIFIED
ADVERTISING USE
DIRECT LINES
RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVISERS
(01) 661 8080

CROSSWORD

Prize Crossword No 47

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, December 9. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name (Miss, Mrs, Ms, Mr)

Address

Telephone

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed Date

- ACROSS**
- 1 Grooves one left in tins (6)
 - 5 A nuisance, the French pounding instrument (6)
 - 8,9 Maud's brothers fashioned holiday wear (7,6)
 - 11 A vegetarian, simple perhaps, I rove all over the place (9)
 - 12 Principle that makes men leave a block of apartments (5)
 - 13 Exam a quarter's taken in vain - not elected (4)
 - 14 Oily stuff crafty flies elude (6,4)
 - 18 Famous Duke, western Duke (10)
 - 19 Behaved like angry cat in petty quarrel (4)
 - 21 Leaps disastrously, making a slip (5)
 - 23 Member caught in taxi strike quickly sent message (9)
 - 24,25 Lessen the number of child listeners you've to make cry (6,2,5)
 - 26 See me, out of bed, going about the ship in a muddle (4,2)
 - 27 Country girl follows the vessel (6)
- DOWN**
- 2 Going by plane is excellent with right musical composer (3,6)
 - 3 A rabbit rampant is an old Egyptian deity (6)
 - 4 Period of time in Greece's capital, something to add relish (9)
 - 5 Quiet fools almost out of date (5)
 - 6 Spry lot I ragged, in a good spirit (8)
 - 7 Pretend to allow to board the bus? (3,2)
 - 8 To live on own we shall act with propriety (6,4)
 - 10 A great newspaper, always (2,3,5)
 - 15 Scruffy, having to scratch endlessly, yet in charge (9)
 - 16 Advantage gained by superior workman (5,4)
 - 17 If upset about hidden microphones, they burn things (8)
 - 20 Attend the final nearly-defeated (6)
 - 22 A bit sanctimonious over eastern church (5)
 - 23 Man in official head-dress that's paltry (5)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of Business Press International Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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SALES BIT

Quality of Management - 75

Selling calls must be worthwhile

LAST week I discussed the various stages and implications of making appointments by telephone, I particularly stressed the need for good planning and preparation, and above all the importance of remembering that the objective is to sell the appointment, not the product.

This week I want to complete this two-part discussion by concentrating on some of the necessary disciplines, as well as offering some tips and ideas on ways in which a high level of success can be achieved.

Let me start by stating the obvious. The primary objective of making appointments by telephone is to make the maximum number of worthwhile selling calls within any given working day.

By "worthwhile", I mean situations where there is real business potential. A meeting of sufficient duration has been agreed in order to allow effective evaluation of the requirement and identification of the best available proposition, and the buyer has agreed either to buy the product or take some sort of action.

Qualification is one of the most essential facets of selling. Last week, I said that wherever possible, qualification should occur before actually telephoning for an appointment. Of course, this is not possible in every case and so the qualification has to be obtained within the call that is primarily intended for fixing the appointment itself.

This is usually the case when following up enquiries. (For those who exhibited at Compec, this may well be your situation at the moment.)

For many salespeople, the instinctive openers are usually ones which do little to progress the selling situation.

"What would you like to know?" "Can I help you?" "What did you think of the girls who were giving out the leaflets on the stand?"

It is essential that the opening statement immediately sets the conversation into qualification mode. "What prompted you to visit our stand?" "Which product interested you the most?" "What kind of problem do you think we might be able to solve for you?"

The salesman must start out with an open-ended question that identifies the need. However, in most cases the prospect will have been qualified before the appointment-making call is actually made. In passing, a good tip when qualifying the prospect is to make contact with the private secretary of either the managing director or the company chairman for information at the top management level, such as who decides what.

These people are usually the best-informed in the organisation. Apart from which, it always sounds a lot stronger to say: "Your managing director's secretary told me you are the right man to speak to." How is the recipient to know whether or not his boss was involved in that recommendation? It is an implied reference well worth making.

That's tip number one. Now I want to concentrate on the most important part, the discipline of scheduling appointments in order to maximise the use of selling time. The first rule is to condition yourself to short lunch-breaks. The second is always to fix the first appointment of the day so that it starts before normal working hours, say 8.00am or at the latest 8.30am. The benefits of discussing business before the buyer's tele-

phone starts ringing and other members of staff start interrupting are obvious and considerable. With this kind of start to the day, the salesman can be on his second call before his main competitor has finished delivering his kids to school.

The third rule is to arrange the second appointment after normal business hours. Again the absence of telephones and people at this time of day makes selling so much easier and more effective as well as minimising intrusion into the selling day.

The fourth rule is to arrange the third appointment of the day with a buyer who normally takes a late lunch, you know, the 1pm/1.30pm guy.

The fifth rule is to fix the fourth appointment of the day with one of the buyers who normally takes an early lunch.

What is the effect of all this? Well, given a situation where a normal selling-call typically takes 45 minutes and the average travelling time between calls is 15 minutes, it means there is still time for three more calls in the morning and two in the afternoon.

So who wants to be the first person to tell me that's impossible? The fact is, in most cases it is purely a matter of insufficient commitment on the part of many sales people.

Yet the total effect of all this when addressed to the selling year is much more than greater dedication to duty and broader application. No-one will argue with the simple thesis that more calls means more prospects means more business.

So, let's not be ambitious and go for those extra five calls that can be achieved by pushing the normal schedule of calls towards the morning, evening and lunchtime; let's just aim for one more call per day.

That's five extra calls in a week. That's got to represent a lot of extra business. By my reckoning, it's worth a 25% improvement in sales achievement. That can't be bad.

Having said that, I am mindful of the fact that time has to be spent on the telephone fixing appointments, but even this can be minimised. Unless you are truly in the one-off one-call-close business, a lot of time can be saved by making a habit of fixing up the next appointment as a concluding action of every selling call.

It is also a much stronger way of making appointments because it is always easier to get commitment on a day-to-day basis than it is over the telephone.

Being a salesman new to the area can often be advantageous, particularly with buyers who are dissatisfied with either competitive suppliers or the salesman's predecessor. It gives them a good chance to have a moan and get some sympathy.

So, if you are genuinely new to the district or a prospective buyer, be sure to say so. Apart from which, most buyers are interested in meeting new people, particularly if they belong to that rare breed, the effective salesman.

Alan Williams

PUZZLE ANSWER

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